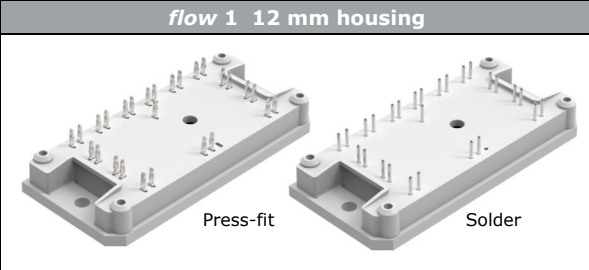
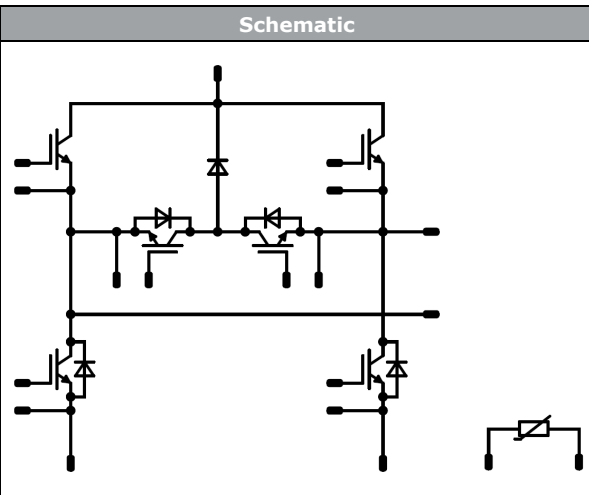




Vincotech

**10-FY07HVA075S5-L985F08**  
**10-PY07HVA075S5-L985F08Y**  
 datasheet

<i>flowPACK 1 H6.5</i>	<b>650 V / 75 A</b>
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Features</b></div> <ul style="list-style-type: none"> <li>Innovative H6.5 Topology</li> <li>IGBT S5 + IGBT L5</li> <li>NTC</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><i>flow 1 12 mm housing</i></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Target applications</b></div> <ul style="list-style-type: none"> <li>Solar Inverters</li> <li>Special Application</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Schematic</b></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Types</b></div> <ul style="list-style-type: none"> <li>10-FY07HVA075S5-L985F08</li> <li>10-PY07HVA075S5-L985F08Y</li> </ul>	

## Maximum Ratings

$T_j = 25\text{ °C}$ , unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
<b>High Buck Switch / Low Buck Switch</b>				
Collector-emitter voltage	$V_{CES}$		650	V
Collector current	$I_C$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	58	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	225	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	86	W
Gate-emitter voltage	$V_{GES}$		±20	V
Maximum junction temperature	$T_{jmax}$		175	°C



## Maximum Ratings

$T_j = 25\text{ °C}$ , unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
<b>Buck Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		650	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	47	A
Repetitive peak forward current	$I_{FRM}$		100	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	63	W
Maximum junction temperature	$T_{jmax}$		175	°C
<b>Boost Switch</b>				
Collector-emitter voltage	$V_{CES}$		650	V
Collector current	$I_C$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	84	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	225	A
Turn off safe operating area		$T_j \leq 175\text{ °C}$ , $V_{CE} \leq 650\text{ V}$	300	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	95	W
Gate-emitter voltage	$V_{GES}$		$\pm 20$	V
Maximum junction temperature	$T_{jmax}$		175	°C
<b>Low Boost Diode / High Boost Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		650	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	47	A
Repetitive peak forward current	$I_{FRM}$		100	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	63	W
Maximum junction temperature	$T_{jmax}$		175	°C



### Maximum Ratings

$T_j = 25\text{ °C}$ , unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
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#### Module Properties

##### Thermal Properties

Storage temperature	$T_{stg}$		-40...+125	°C
Operation temperature under switching condition	$T_{top}$		-40...(T <sub>max</sub> - 25)	°C

##### Isolation Properties

Isolation voltage	$V_{isol}$	DC Test Voltage* $t_p = 2\text{ s}$	6000	V
		AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			min. 12,7	mm
Clearance			7,99	mm
Comparative Tracking Index	CTI		> 200	

\*100 % tested in production



## Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	

### High Buck Switch / Low Buck Switch

#### Static

Parameter	Symbol	$V_{CE} = V_{CE}$	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$					0,00075	25	3,2	4	4,8	V
Collector-emitter saturation voltage	$V_{CEsat}$		15			75	25 125 150		1,56 1,56 1,59	1,75	V
Collector-emitter cut-off current	$I_{CES}$		0	650			25			50	μA
Gate-emitter leakage current	$I_{GES}$		20	0			25			100	nA
Internal gate resistance	$r_g$								none		Ω
Input capacitance	$C_{ies}$								4500		pF
Output capacitance	$C_{oes}$	$f = 1$ Mhz	0	25		25			130		
Reverse transfer capacitance	$C_{res}$								17		
Gate charge	$Q_g$		15	520	75	25			164		nC

#### Thermal

Parameter	Symbol	Value	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)	K/W

#### Dynamic

Parameter	Symbol	$R_{gon} = 4$ Ω $R_{goff} = 4$ Ω	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$						25 125 150		31 31 31		ns
Rise time	$t_r$						25 125 150		10 10 11		
Turn-off delay time	$t_{d(off)}$						25 125 150		110 126 132		
Fall time	$t_f$						25 125 150		10 25 32		
Turn-on energy (per pulse)	$E_{on}$	$Q_{tFWD} = 2,2$ μC $Q_{tFWD} = 4$ μC $Q_{tFWD} = 4,7$ μC					25 125 150		0,450 0,701 0,758		mWs
Turn-off energy (per pulse)	$E_{off}$						25 125 150		0,457 0,875 1,023		



Vincotech

**10-FY07HVA075S5-L985F08**  
**10-PY07HVA075S5-L985F08Y**  
 datasheet

### Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V] $V_{GS}$ [V]	$V_{CE}$ [V] $V_{DS}$ [V]	$I_C$ [A] $I_D$ [A]	$I_D$ [A] $I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	

#### Buck Diode

##### Static

Forward voltage	$V_F$				50	25 125 150		1,50 1,44 1,42	1,92	V
Reverse leakage current	$I_R$			650		25			2,65	μA

##### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						1,50		K/W
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##### Dynamic

Peak recovery current	$I_{RRM}$					25 125 150		86 110 117		A
Reverse recovery time	$t_{rr}$					25 125 150		55 87 101		ns
Recovered charge	$Q_r$	$di/dt = 5329$ A/μs $di/dt = 8023$ A/μs $di/dt = 7260$ A/μs	-5 / 15	350	75	25 125 150		2,18 4,04 4,70		μC
Reverse recovered energy	$E_{rec}$					25 125 150		0,381 0,838 1,021		mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					25 125 150		5984 4040 4174		A/μs



## Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	

### Boost Switch

#### Static

Parameter	Symbol	Conditions	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$				0,001	25	4,2	5	5,8	V
Collector-emitter saturation voltage	$V_{CEsat}$		15			75	25 125 150		1,10 1,08 1,09	1,45	V
Collector-emitter cut-off current	$I_{CES}$		0	650			25			40	μA
Gate-emitter leakage current	$I_{GES}$		20	0			25			100	nA
Internal gate resistance	$r_g$								none		Ω
Input capacitance	$C_{ies}$								11625		pF
Output capacitance	$C_{oes}$	$f = 1 \text{ Mhz}$	0	25		25			150		
Reverse transfer capacitance	$C_{res}$								30		
Gate charge	$Q_g$		15	520	75		25		436		nC

#### Thermal

Parameter	Symbol	Conditions	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4 \text{ W/mK}$ (PSX)							1,00		K/W

#### Dynamic (T21,D12)

Parameter	Symbol	Conditions	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	$R_{gon} = 4 \Omega$ $R_{goff} = 4 \Omega$	±15	350	75			25	123		ns
Rise time	$t_r$							125	121		
								150	120		
								25	9		
Turn-off delay time	$t_{d(off)}$							125	8		
		150	8								
		25	189								
Fall time	$t_f$	125	215								
		150	221								
		25	53								
Turn-on energy (per pulse)	$E_{on}$	$Q_{iFWD} = 2,1 \mu\text{C}$ $Q_{iFWD} = 3,8 \mu\text{C}$ $Q_{iFWD} = 4,4 \mu\text{C}$						25	0,171		mWs
								125	0,164		
								150	0,200		
Turn-off energy (per pulse)	$E_{off}$							25	3,189		
								125	4,647		
								150	5,023		



### Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max		

#### Low Boost Diode

##### Static

Parameter	Symbol	$V_{GS}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Forward voltage	$V_F$			50		25 125 150		1,50 1,44 1,42	1,92	V
Reverse leakage current	$I_R$		650			25			2,65	µA

##### Thermal

Parameter	Symbol	Conditions	Value	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)	1,50	K/W

##### Dynamic (T21,D12)

Parameter	Symbol	$V_{GS}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Peak recovery current	$I_{RRM}$					25 125 150		76 101 105		A
Reverse recovery time	$t_{rr}$					25 125 150		58 89 101		ns
Recovered charge	$Q_r$			±15	350	75		2,102 3,817 4,395		µC
Reverse recovered energy	$E_{rec}$					25 125 150		0,623 0,986 1,148		mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					25 125 150		4813 3089 2758		A/µs



## Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	

### Boost Switch

#### Static

Parameter	Symbol	Conditions	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{CE}$				0,001	25	4,2	5	5,8	V
Collector-emitter saturation voltage	$V_{CEsat}$		15			75	25 125 150		1,10 1,08 1,09	1,45	V
Collector-emitter cut-off current	$I_{CES}$		0	650			25			40	μA
Gate-emitter leakage current	$I_{GES}$		20	0			25			100	nA
Internal gate resistance	$r_g$								none		Ω
Input capacitance	$C_{ies}$								11625		pF
Output capacitance	$C_{oes}$	$f = 1$ Mhz	0	25		25			150		
Reverse transfer capacitance	$C_{res}$								30		
Gate charge	$Q_g$		15	520	75		25		436		nC

#### Thermal

Parameter	Symbol	Conditions	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)							1,00		K/W

#### Dynamic (T21, D20)

Parameter	Symbol	Conditions	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	$R_{gon} = 4 \Omega$ $R_{goff} = 4 \Omega$	±15	350	75			25	117		ns
Rise time	$t_r$							125	112		
								150	112		
								25	12		
Turn-off delay time	$t_{d(off)}$							125	7		
		150	8								
		25	187								
Fall time	$t_f$	125	214								
		150	222								
		25	56								
Turn-on energy (per pulse)	$E_{on}$	$Q_{iFWD} = 2 \mu C$ $Q_{iFWD} = 4 \mu C$ $Q_{iFWD} = 4,6 \mu C$						25	0,375		mWs
								125	0,479		
								150	0,528		
Turn-off energy (per pulse)	$E_{off}$							25	3,056		
								125	4,452		
								150	4,791		





## Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max		

### High Boost Diode

#### Static

Parameter	Symbol	$V_{GS}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Forward voltage	$V_F$			50		25 125 150		1,50 1,44 1,42	1,92	V
Reverse leakage current	$I_R$		650			25			2,65	µA

#### Thermal

Parameter	Symbol	Conditions	Value	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)	1,50	K/W

#### Dynamic (T21, D20)

Parameter	Symbol	$\pm$	$V_{GS}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Peak recovery current	$I_{RRM}$						25 125 150		64 109 114		A
Reverse recovery time	$t_{rr}$						25 125 150		63 91 102		ns
Recovered charge	$Q_r$	$\pm 15$	350		75		25 125 150		2,033 4,017 4,576		µC
Reverse recovered energy	$E_{rec}$						25 125 150		0,556 0,853 1,006		mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$						25 125 150		2384 5443 4708		A/µs

### Thermistor

Parameter	Symbol	Conditions	Value	Unit
Rated resistance	$R$		25	kΩ
Deviation of $R_{100}$	$\Delta_{R/R}$	$R_{100} = 1484$ Ω	100	%
Power dissipation	$P$		25	mW
Power dissipation constant			25	mW/K
B-value	$B_{(25/50)}$	Tol. $\pm 1$ %	25	K
B-value	$B_{(25/100)}$	Tol. $\pm 1$ %	25	K
Vincotech NTC Reference				I

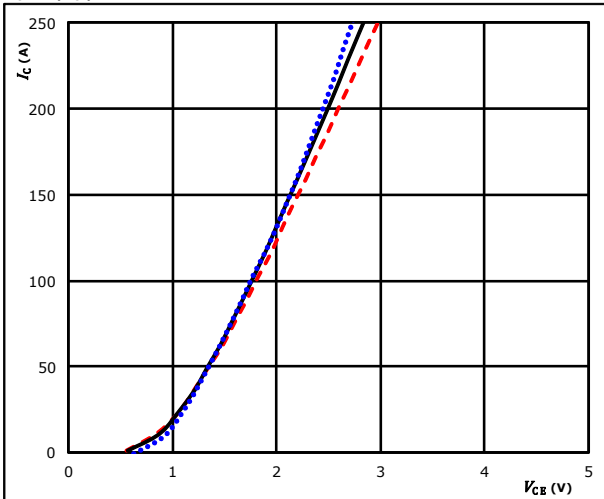


## High Buck Switch / Low Buck Switch Characteristics

**figure 1.** IGBT

Typical output characteristics

$$I_C = f(V_{CE})$$

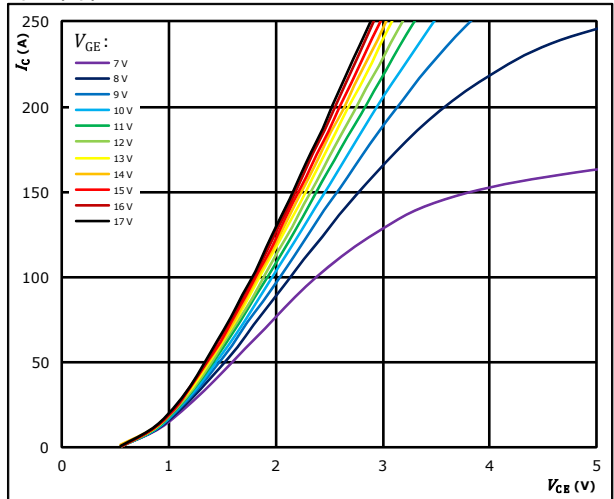


$t_p = 250 \mu\text{s}$   $T_j: 25 \text{ }^\circ\text{C}$  .....  
 $V_{GE} = 15 \text{ V}$   $T_j: 125 \text{ }^\circ\text{C}$  ———  
 $T_j: 150 \text{ }^\circ\text{C}$  - - - - -

**figure 2.** IGBT

Typical output characteristics

$$I_C = f(V_{CE})$$

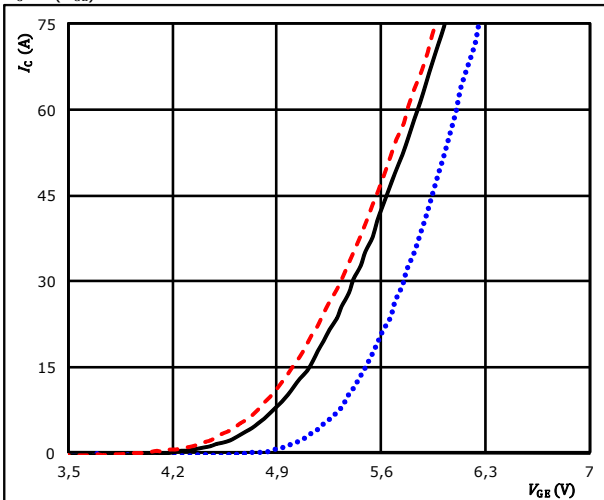


$t_p = 250 \mu\text{s}$   
 $T_j = 150 \text{ }^\circ\text{C}$   
 $V_{GE}$  from 7 V to 17 V in steps of 1 V

**figure 3.** IGBT

Typical transfer characteristics

$$I_C = f(V_{GE})$$

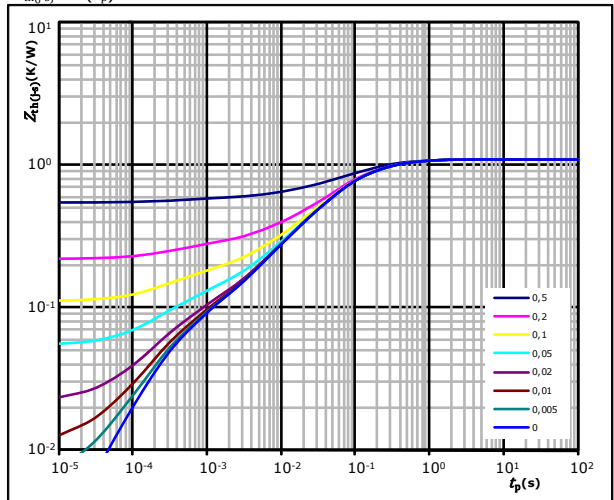


$t_p = 100 \mu\text{s}$   $T_j: 25 \text{ }^\circ\text{C}$  .....  
 $V_{CE} = 10 \text{ V}$   $T_j: 125 \text{ }^\circ\text{C}$  ———  
 $T_j: 150 \text{ }^\circ\text{C}$  - - - - -

**figure 4.** IGBT

Transient thermal impedance as function of pulse duration

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$   
 $R_{th(j-s)} = 1,10 \text{ K/W}$

IGBT thermal model values

$R$ (K/W)	$\tau$ (s)
2,16E-01	4,05E-01
6,30E-01	6,87E-02
1,62E-01	1,13E-02
3,68E-02	2,51E-03
6,02E-02	3,09E-04

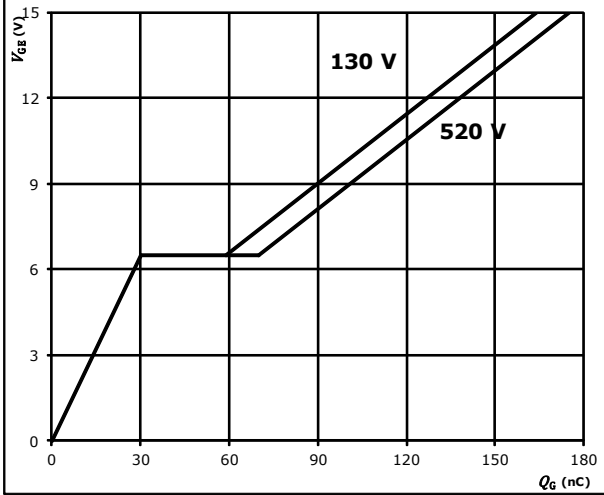


## High Buck Switch / Low Buck Switch Characteristics

**figure 5. IGBT**

Gate voltage vs gate charge

$V_{GE} = f(Q_G)$

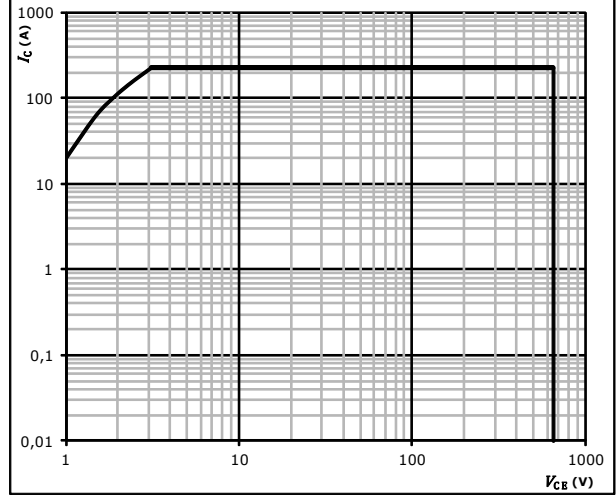


$I_C = 75$  A

**figure 6. IGBT**

Safe operating area

$I_C = f(V_{CE})$



$D =$  single pulse  
 $T_s = 80$  °C  
 $V_{GE} = \pm 15$  V  
 $T_j = T_{jmax}$

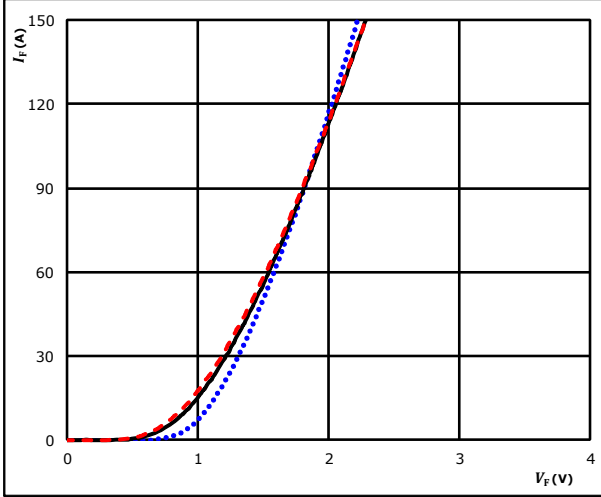


## Buck Diode Characteristics

**figure 1.** FWD

Typical forward characteristics

$$I_F = f(V_F)$$



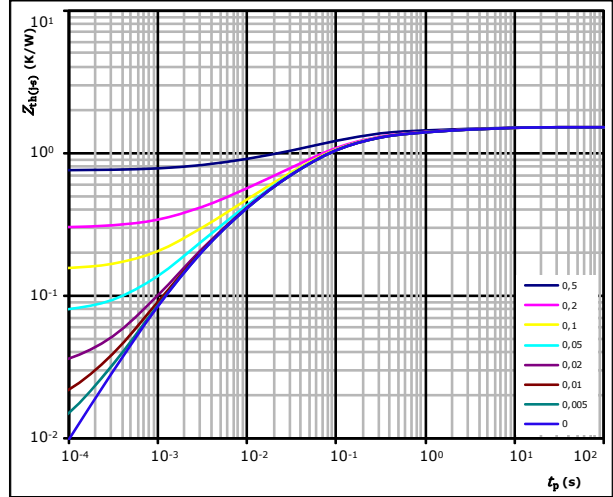
$t_p = 250 \mu s$

$T_j$ : 25 °C (blue dotted line)  
 125 °C (black solid line)  
 150 °C (red dashed line)

**figure 2.** FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$

$R_{th(j-s)} = 1,50 \text{ K/W}$

FWD thermal model values

$R$ (K/W)	$\tau$ (s)
1,03E-01	4,73E+00
2,05E-01	5,53E-01
6,39E-01	8,31E-02
3,39E-01	2,02E-02
1,71E-01	4,42E-03
4,45E-02	1,30E-03

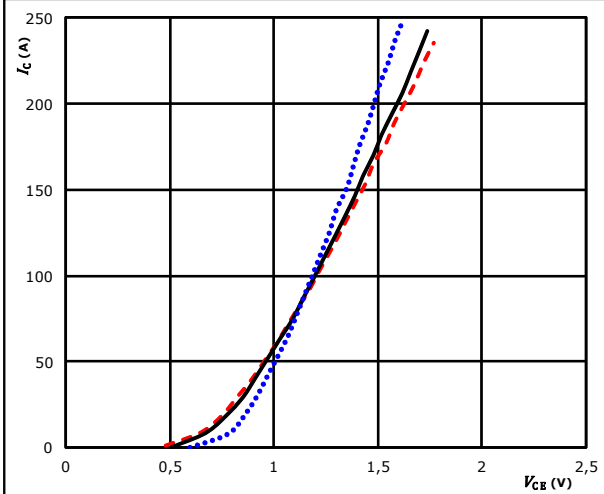


### Boost Switch Characteristics

**figure 1. IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

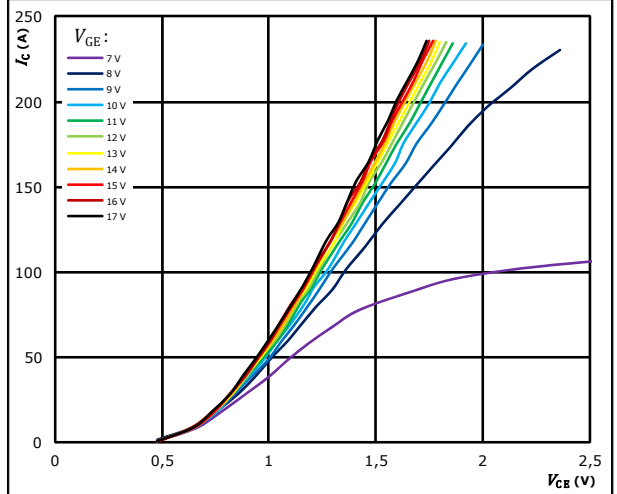


$t_p = 250 \mu s$   $T_j: 25 \text{ }^\circ C$  .....  
 $V_{GE} = 15 V$   $T_j: 125 \text{ }^\circ C$  ———  
 $T_j: 150 \text{ }^\circ C$  - - - - -

**figure 2. IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

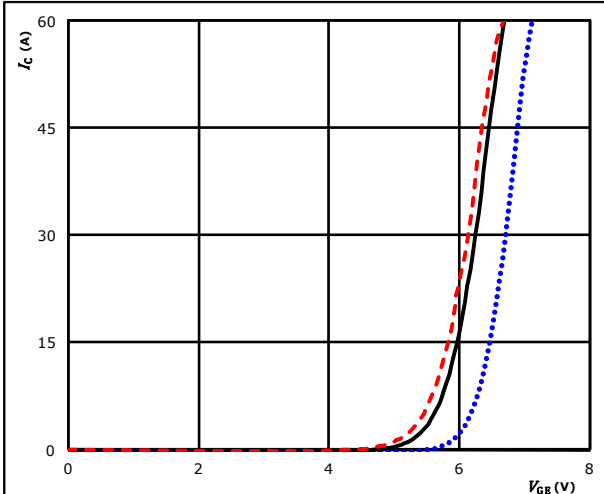


$t_p = 250 \mu s$   
 $T_j = 150 \text{ }^\circ C$   
 $V_{GE}$  from 7 V to 17 V in steps of 1 V

**figure 3. IGBT**

Typical transfer characteristics

$I_C = f(V_{GE})$

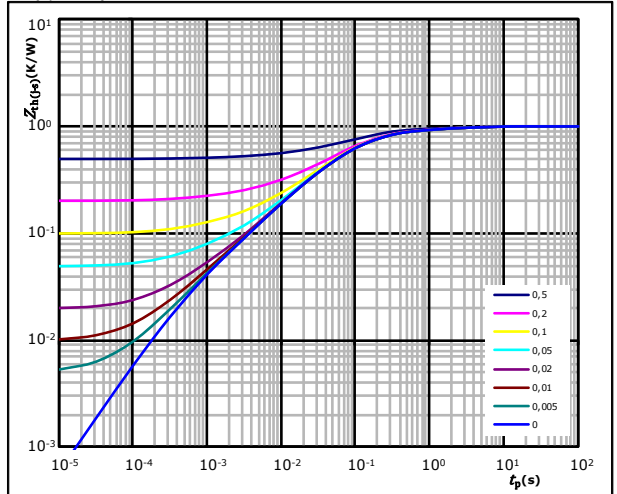


$t_p = 100 \mu s$   $T_j: 25 \text{ }^\circ C$  .....  
 $V_{CE} = 10 V$   $T_j: 125 \text{ }^\circ C$  ———  
 $T_j: 150 \text{ }^\circ C$  - - - - -

**figure 4. IGBT**

Transient thermal impedance as function of pulse duration

$Z_{th(j-s)} = f(t_p)$



$D = t_p / T$   
 $R_{th(j-s)} = 1,00 \text{ K/W}$   
 IGBT thermal model values

R (K/W)	$\tau$ (s)
8,80E-02	2,68E+00
1,67E-01	3,70E-01
5,38E-01	8,09E-02
1,47E-01	1,56E-02
3,80E-02	3,42E-03
1,88E-02	5,45E-04

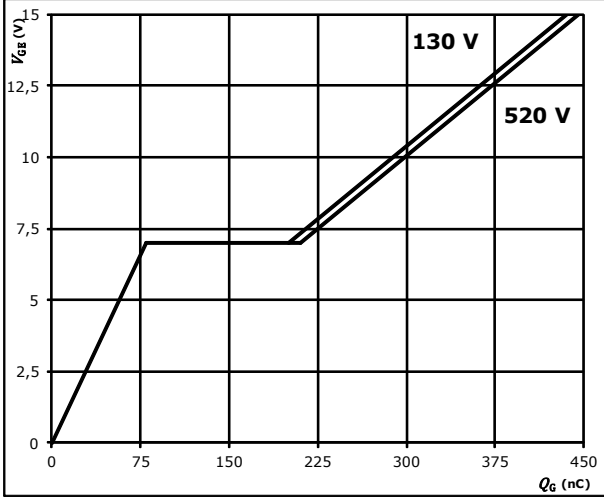


### Boost Switch Characteristics

**figure 5. IGBT**

Gate voltage vs gate charge

$V_{GE} = f(Q_G)$

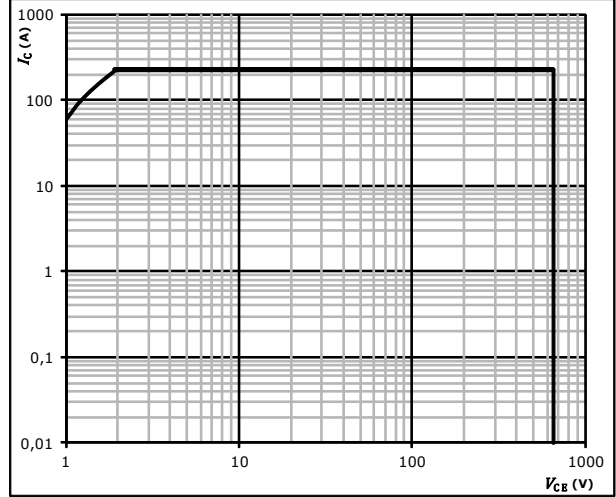


$I_C = 75$  A

**figure 6. IGBT**

Safe operating area

$I_C = f(V_{CE})$



$D =$  single pulse  
 $T_s = 80$  °C  
 $V_{GE} = \pm 15$  V  
 $T_j = T_{jmax}$

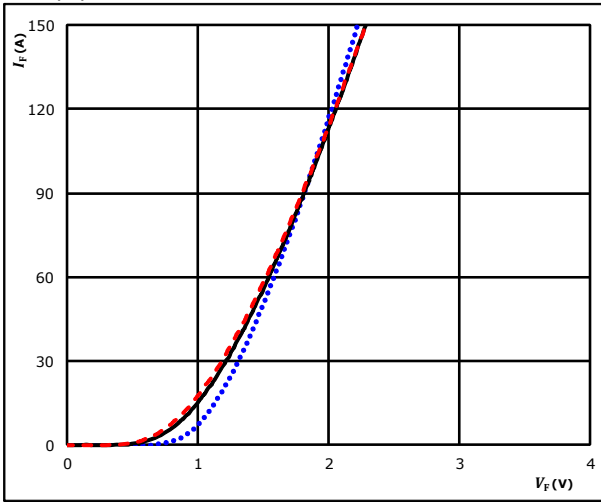


## Low Boost Diode Characteristics

**figure 1.** FWD

Typical forward characteristics

$$I_F = f(V_F)$$



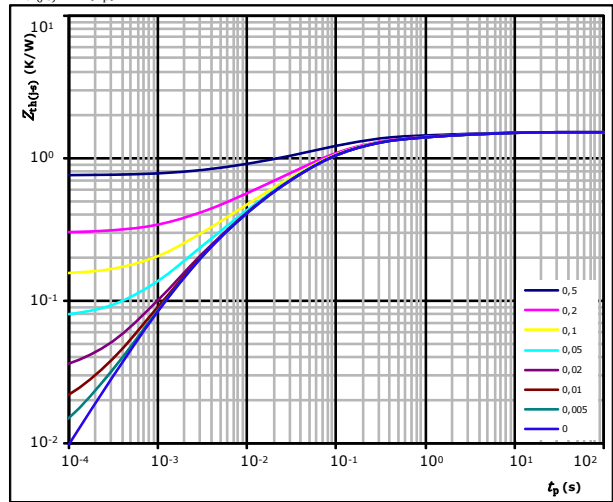
$t_p = 250 \mu s$

$T_j$ : 25 °C .....  
 125 °C ———  
 150 °C - - - -

**figure 2.** FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$

$R_{th(j-s)} = 1,50 \text{ K/W}$

FWD thermal model values

$R$ (K/W)	$\tau$ (s)
1,03E-01	4,73E+00
2,05E-01	5,53E-01
6,39E-01	8,31E-02
3,39E-01	2,02E-02
1,71E-01	4,42E-03
4,45E-02	1,30E-03

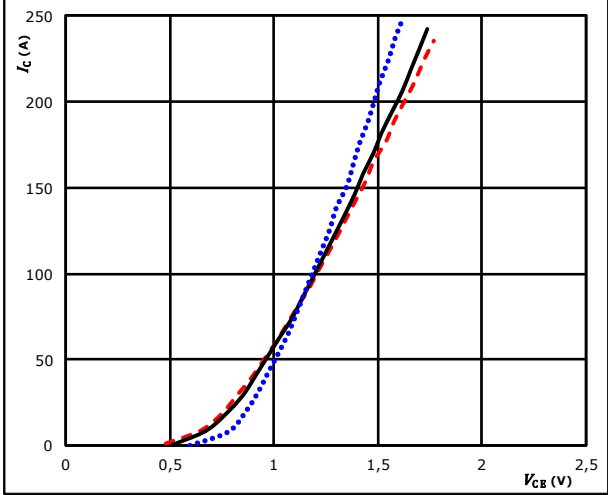


### Boost Switch Characteristics

**figure 1. IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

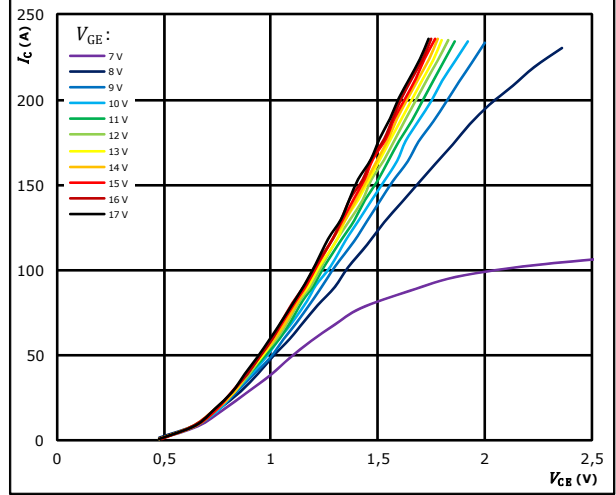


$t_p = 250 \mu s$        $T_j: 25 \text{ }^\circ C$       .....  
 $V_{GE} = 15 \text{ V}$        $T_j: 125 \text{ }^\circ C$       ———  
                           $T_j: 150 \text{ }^\circ C$       - - - -

**figure 2. IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

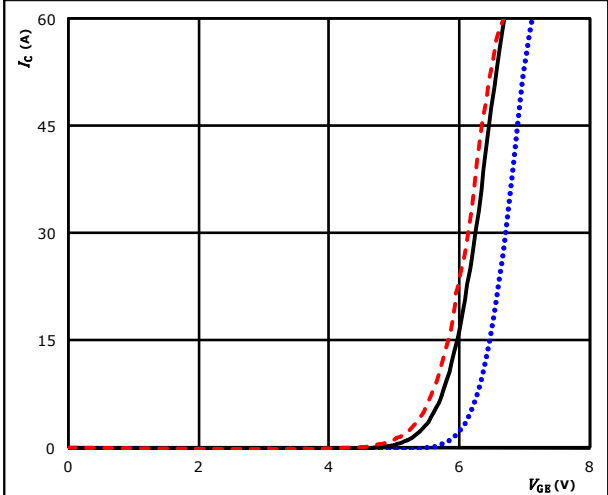


$t_p = 250 \mu s$   
 $T_j = 150 \text{ }^\circ C$   
 $V_{GE}$  from 7 V to 17 V in steps of 1 V

**figure 3. IGBT**

Typical transfer characteristics

$I_C = f(V_{GE})$

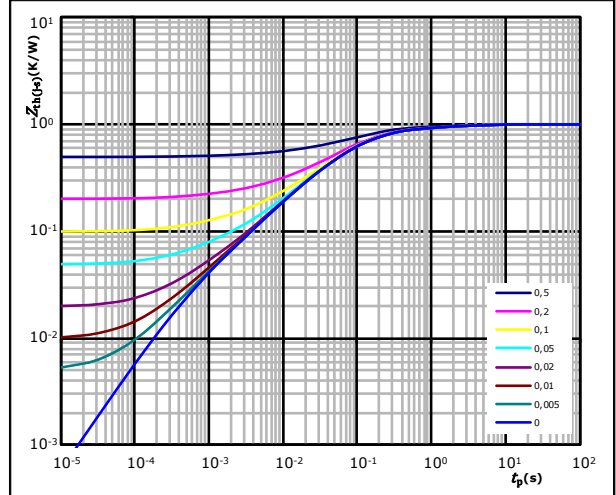


$t_p = 100 \mu s$        $T_j: 25 \text{ }^\circ C$       .....  
 $V_{CE} = 10 \text{ V}$        $T_j: 125 \text{ }^\circ C$       ———  
                           $T_j: 150 \text{ }^\circ C$       - - - -

**figure 4. IGBT**

Transient thermal impedance as function of pulse duration

$Z_{th(j-s)} = f(t_p)$



$D = t_p / T$   
 $R_{th(j-s)} = 1,00 \text{ K/W}$

IGBT thermal model values

R (K/W)	$\tau$ (s)
8,80E-02	2,68E+00
1,67E-01	3,70E-01
5,38E-01	8,09E-02
1,47E-01	1,56E-02
3,80E-02	3,42E-03
1,88E-02	5,45E-04



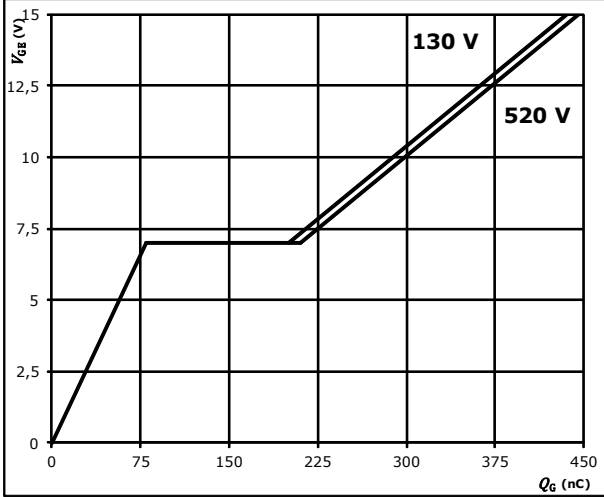


### Boost Switch Characteristics

**figure 5. IGBT**

Gate voltage vs gate charge

$V_{GE} = f(Q_G)$

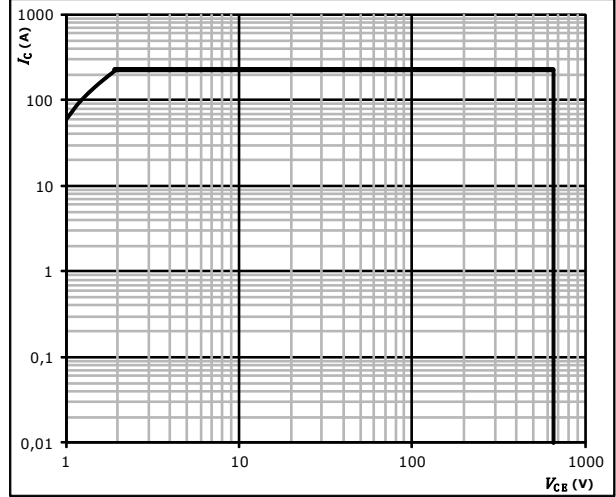


$I_C = 75$  A

**figure 6. IGBT**

Safe operating area

$I_C = f(V_{CE})$



$D =$  single pulse  
 $T_s = 80$  °C  
 $V_{GE} = \pm 15$  V  
 $T_j = T_{jmax}$

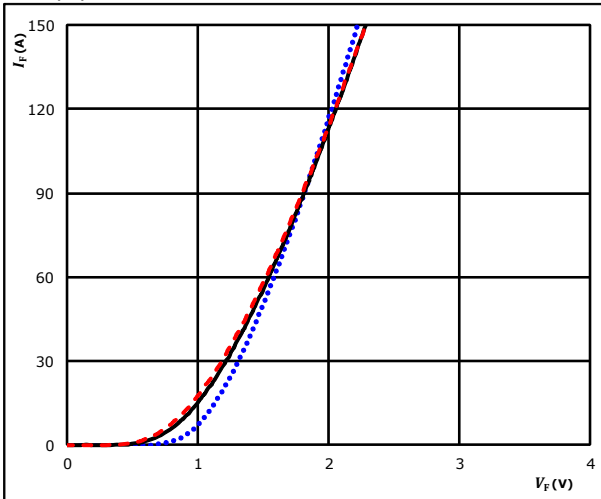


## High Boost Diode Characteristics

**figure 1.** FWD

Typical forward characteristics

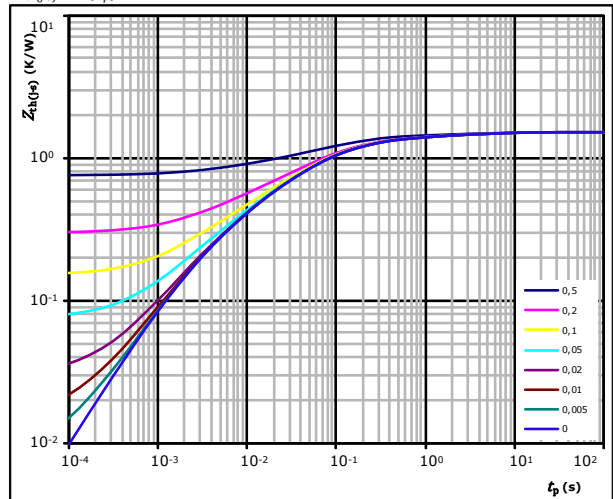
$$I_F = f(V_F)$$



**figure 2.** FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$   
 $R_{th(j-s)} = 1,50 \text{ K/W}$   
 FWD thermal model values

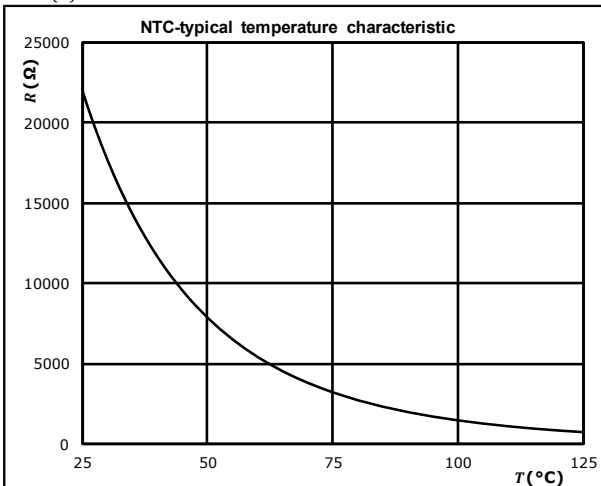
$R$ (K/W)	$\tau$ (s)
1,03E-01	4,73E+00
2,05E-01	5,53E-01
6,39E-01	8,31E-02
3,39E-01	2,02E-02
1,71E-01	4,42E-03
4,45E-02	1,30E-03

## Thermistor Characteristics

**figure 1.** Thermistor

Typical NTC characteristic as a function of temperature

$$R = f(T)$$



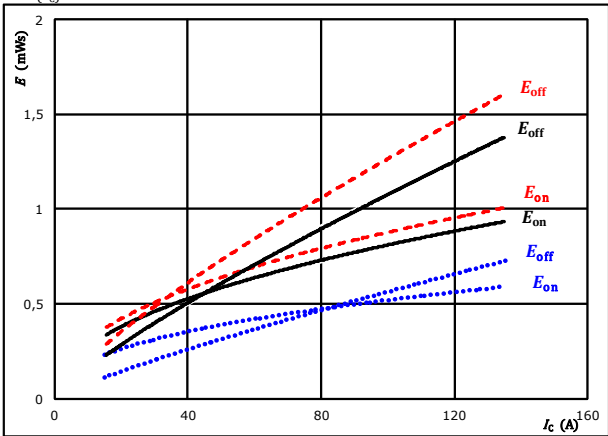


## Buck Switching Characteristics

**figure 1.** IGBT

Typical switching energy losses as a function of collector current

$$E = f(I_C)$$



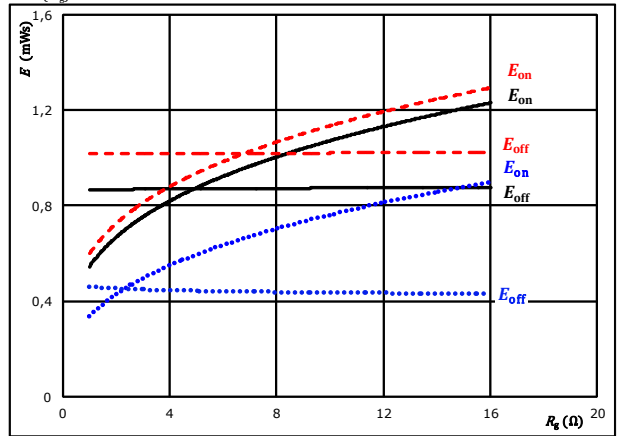
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = -5 / 15$  V  
 $R_{gon} = 4$   $\Omega$   
 $R_{goff} = 4$   $\Omega$

$T_j$ : 25 °C (dotted blue)  
 125 °C (solid black)  
 150 °C (dashed red)

**figure 2.** IGBT

Typical switching energy losses as a function of gate resistor

$$E = f(R_g)$$



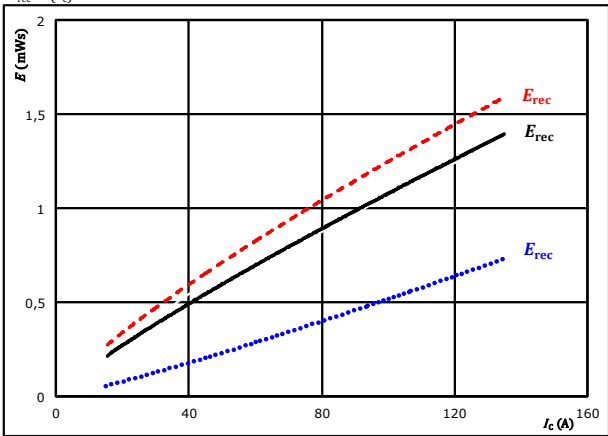
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = -5 / 15$  V  
 $I_C = 75$  A

$T_j$ : 25 °C (dotted blue)  
 125 °C (solid black)  
 150 °C (dashed red)

**figure 3.** FWD

Typical reverse recovered energy loss as a function of collector current

$$E_{rec} = f(I_C)$$



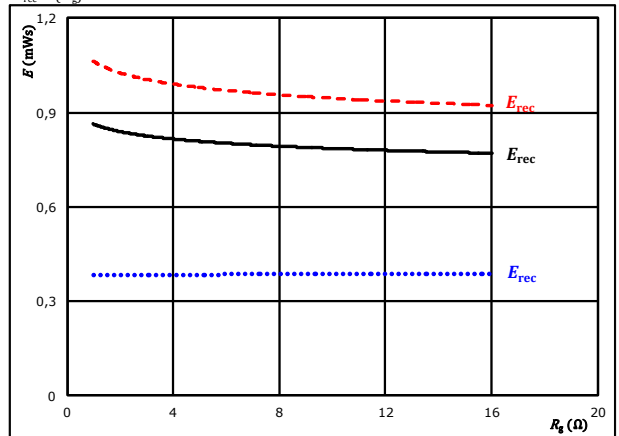
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = -5 / 15$  V  
 $R_{gon} = 4$   $\Omega$

$T_j$ : 25 °C (dotted blue)  
 125 °C (solid black)  
 150 °C (dashed red)

**figure 4.** FWD

Typical reverse recovered energy loss as a function of gate resistor

$$E_{rec} = f(R_g)$$



With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = -5 / 15$  V  
 $I_C = 75$  A

$T_j$ : 25 °C (dotted blue)  
 125 °C (solid black)  
 150 °C (dashed red)



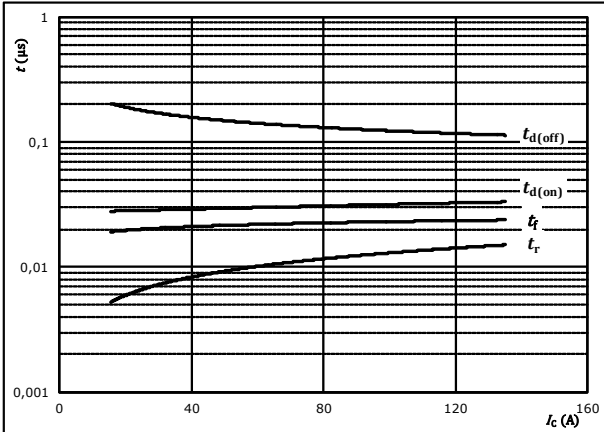
Vincotech

## Buck Switching Characteristics

**figure 5.** IGBT

Typical switching times as a function of collector current

$$t = f(I_C)$$



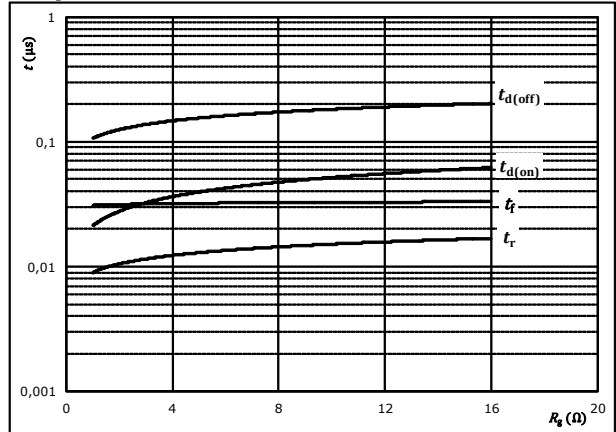
With an inductive load at

$T_j =$	150	°C
$V_{CE} =$	350	V
$V_{GE} =$	-5 / 15	V
$R_{g(on)} =$	4	Ω
$R_{g(off)} =$	4	Ω

**figure 6.** IGBT

Typical switching times as a function of gate resistor

$$t = f(R_g)$$



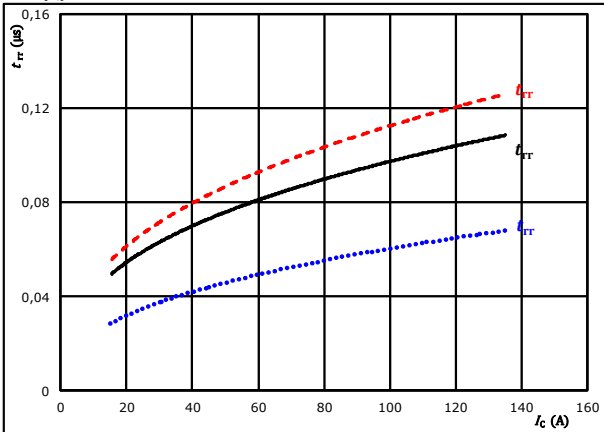
With an inductive load at

$T_j =$	150	°C
$V_{CE} =$	350	V
$V_{GE} =$	-5 / 15	V
$I_C =$	75	A

**figure 7.** FWD

Typical reverse recovery time as a function of collector current

$$t_{rr} = f(I_C)$$

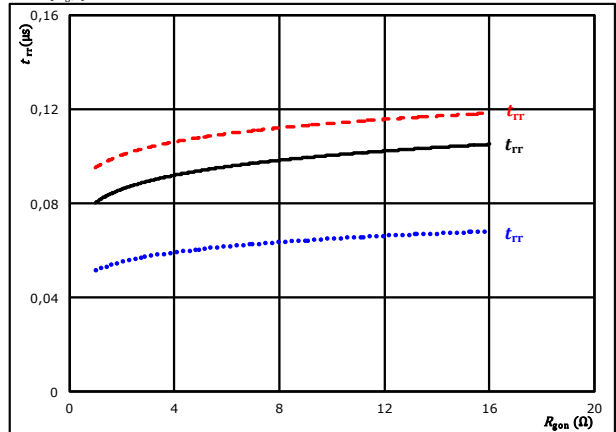


At	$V_{CE} =$	350	V	$T_j:$	25 °C	.....
	$V_{GE} =$	-5 / 15	V		125 °C	————
	$R_{g(on)} =$	4	Ω		150 °C	- - - -

**figure 8.** FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor

$$t_{rr} = f(R_{g(on)})$$



At	$V_{CE} =$	350	V	$T_j:$	25 °C	.....
	$V_{GE} =$	-5 / 15	V		125 °C	————
	$I_C =$	75	A		150 °C	- - - -

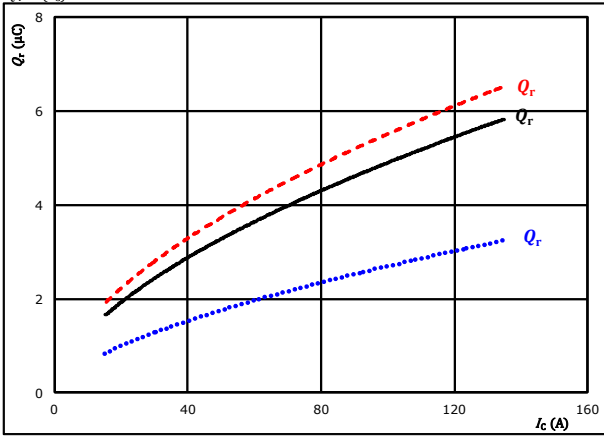


## Buck Switching Characteristics

**figure 9.** FWD

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$

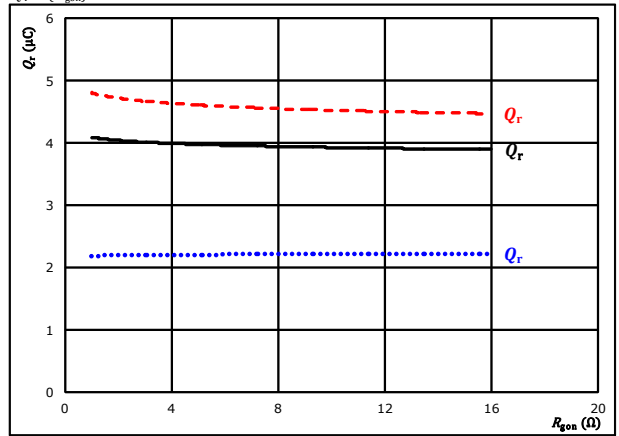


At  $V_{CE} = 350$  V  $T_j = 25$  °C  $\dots\dots\dots$   
 $V_{GE} = -5 / 15$  V  $T_j = 125$  °C  $\text{---}$   
 $R_{gon} = 4$  Ω  $T_j = 150$  °C  $\text{--- --}$

**figure 10.** FWD

Typical recovered charge as a function of IGBT turn on gate resistor

$$Q_r = f(R_{gon})$$

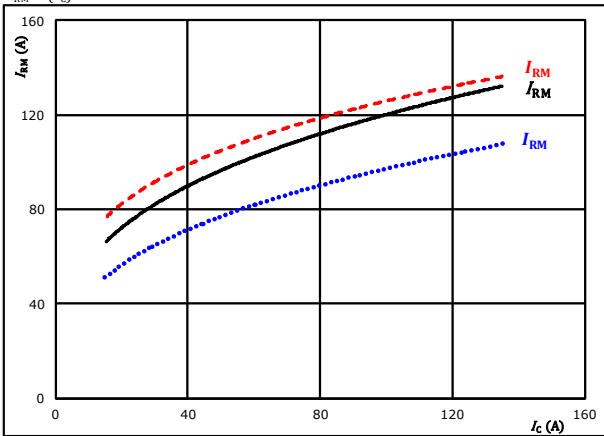


At  $V_{CE} = 350$  V  $T_j = 25$  °C  $\dots\dots\dots$   
 $V_{GE} = -5 / 15$  V  $T_j = 125$  °C  $\text{---}$   
 $I_c = 75$  A  $T_j = 150$  °C  $\text{--- --}$

**figure 11.** FWD

Typical peak reverse recovery current current as a function of collector current

$$I_{RM} = f(I_c)$$

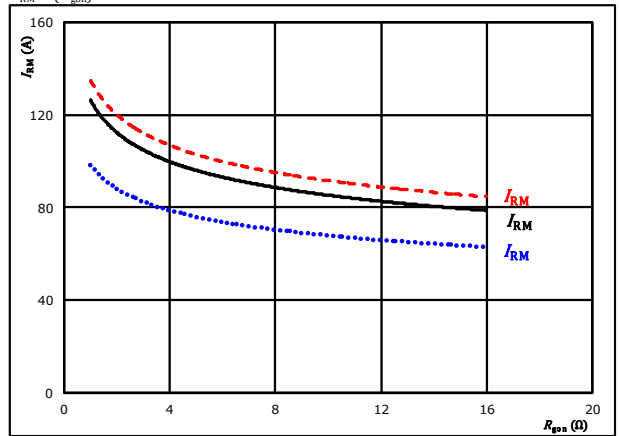


At  $V_{CE} = 350$  V  $T_j = 25$  °C  $\dots\dots\dots$   
 $V_{GE} = -5 / 15$  V  $T_j = 125$  °C  $\text{---}$   
 $R_{gon} = 4$  Ω  $T_j = 150$  °C  $\text{--- --}$

**figure 12.** FWD

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$$I_{RM} = f(R_{gon})$$



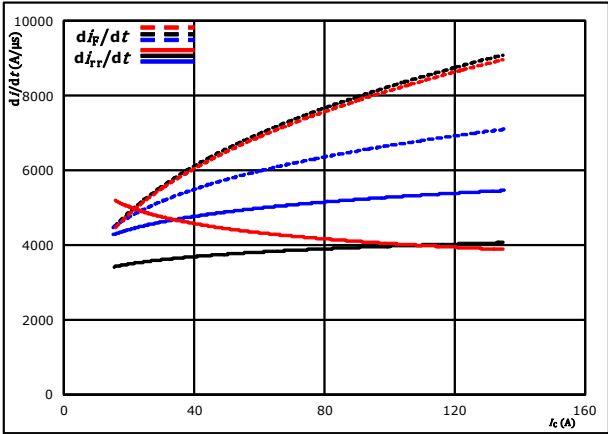
At  $V_{CE} = 350$  V  $T_j = 25$  °C  $\dots\dots\dots$   
 $V_{GE} = -5 / 15$  V  $T_j = 125$  °C  $\text{---}$   
 $I_c = 75$  A  $T_j = 150$  °C  $\text{--- --}$



## Buck Switching Characteristics

**figure 13.** FWD

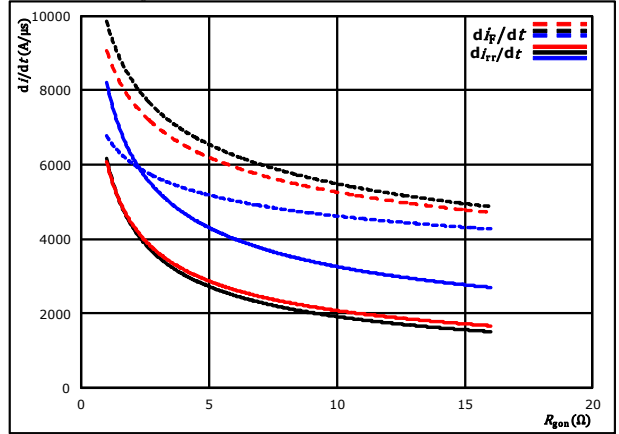
Typical rate of fall of forward and reverse recovery current as a function of collector current  
 $di_f/dt, di_{rr}/dt = f(I_c)$



At  $V_{CE} = 350$  V  $T_j = 25$  °C  
 $V_{GE} = -5 / 15$  V  $T_j = 125$  °C  
 $R_{gon} = 4$  Ω  $T_j = 150$  °C

**figure 14.** FWD

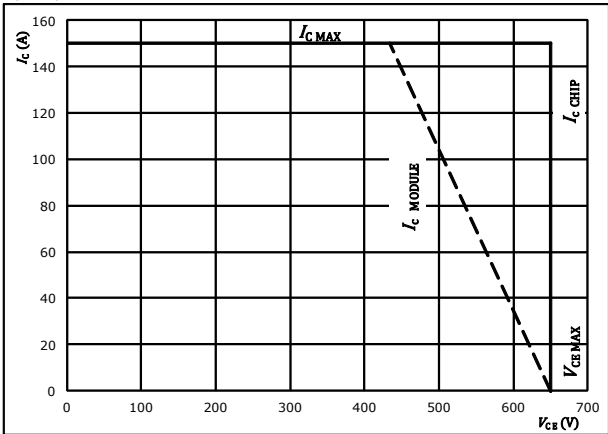
Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor  
 $di_f/dt, di_{rr}/dt = f(R_{gon})$



At  $V_{CE} = 350$  V  $T_j = 25$  °C  
 $V_{GE} = -5 / 15$  V  $T_j = 125$  °C  
 $I_c = 75$  A  $T_j = 150$  °C

**figure 15.** IGBT

Reverse bias safe operating area  
 $I_c = f(V_{CE})$



At  $T_j = 175$  °C  
 $R_{gon} = 4$  Ω  
 $R_{goff} = 4$  Ω

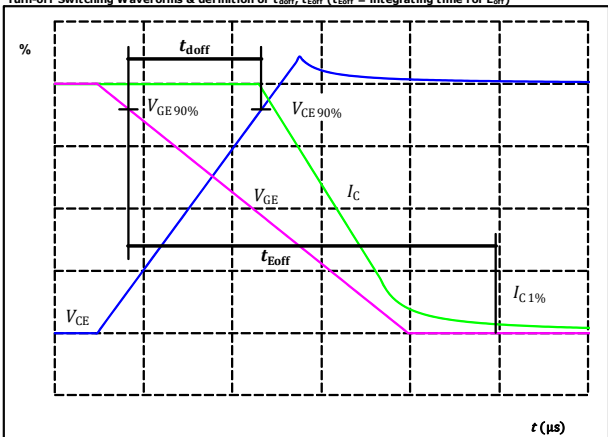


## Buck Switching Definitions

General conditions		
$T_j$	=	125 °C
$R_{gon}$	=	4 $\Omega$
$R_{goff}$	=	4 $\Omega$

figure 1. IGBT

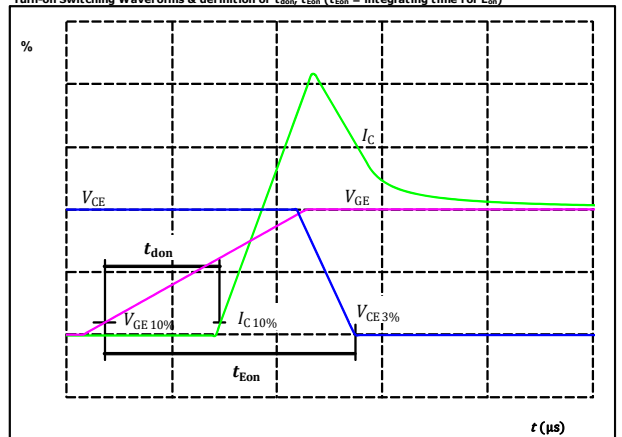
Turn-off Switching Waveforms & definition of  $t_{doff}$ ,  $t_{Eoff}$  ( $t_{Eoff}$  = integrating time for  $E_{off}$ )



$V_{CE}(0\%) =$	-5	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_{doff} =$	126	ns

figure 2. IGBT

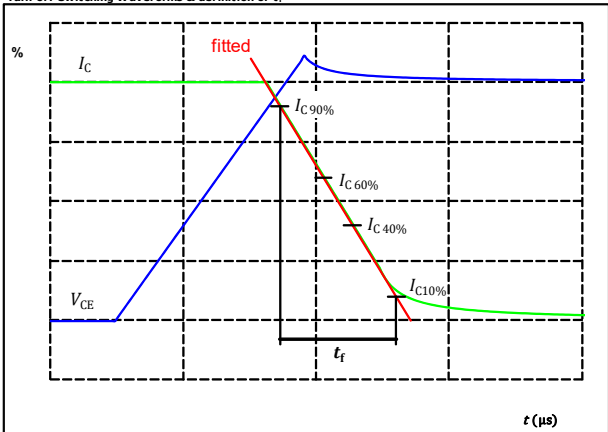
Turn-on Switching Waveforms & definition of  $t_{Eon}$ ,  $t_{don}$  ( $t_{Eon}$  = integrating time for  $E_{on}$ )



$V_{CE}(0\%) =$	-5	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_{don} =$	31	ns

figure 3. IGBT

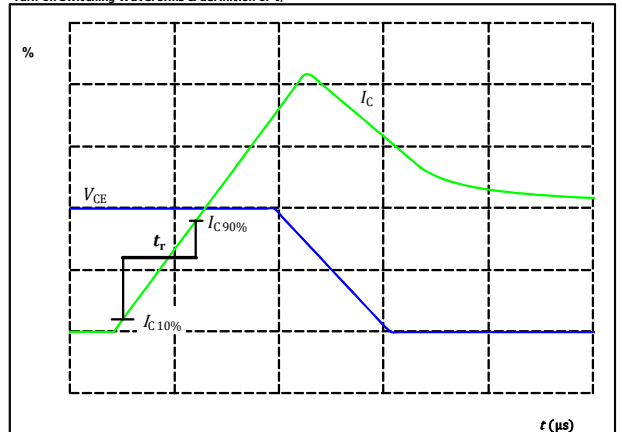
Turn-off Switching Waveforms & definition of  $t_f$



$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_f =$	25	ns

figure 4. IGBT

Turn-on Switching Waveforms & definition of  $t_r$



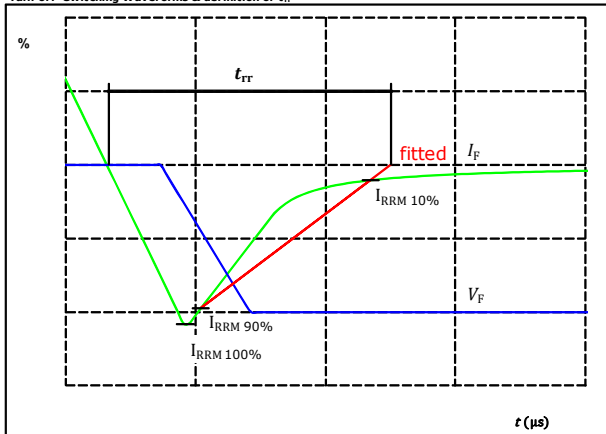
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_r =$	10	ns



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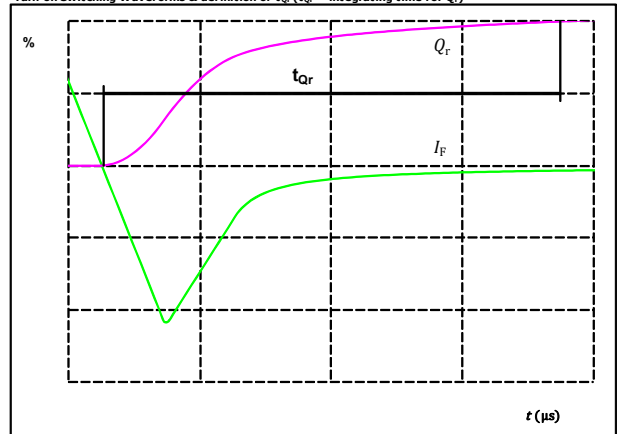
## Buck Switching Characteristics

**figure 5.** FWD  
 Turn-off Switching Waveforms & definition of  $t_{rr}$



$V_F(100\%) =$	350	V
$I_F(100\%) =$	75	A
$I_{RRM}(100\%) =$	110	A
$t_{rr} =$	87	ns

**figure 6.** FWD  
 Turn-on Switching Waveforms & definition of  $t_{Qr}$  ( $t_{Qr}$  = integrating time for  $Q_r$ )



$I_F(100\%) =$	75	A
$Q_r(100\%) =$	4,04	$\mu\text{C}$



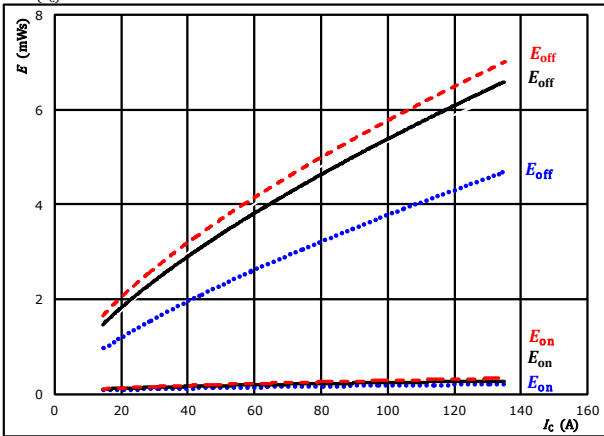


## Low Boost Switching Characteristics

**figure 1.** IGBT

Typical switching energy losses as a function of collector current

$$E = f(I_C)$$



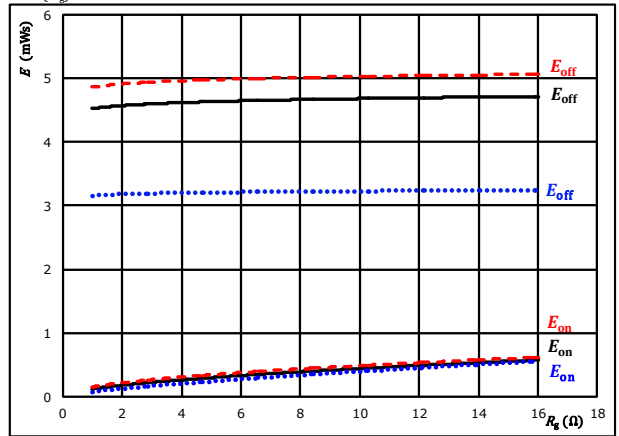
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $R_{g\text{on}} = 4$   $\Omega$   
 $R_{g\text{off}} = 4$   $\Omega$

$T_j$ : 25 °C (blue dotted line)  
 125 °C (black solid line)  
 150 °C (red dashed line)

**figure 2.** IGBT

Typical switching energy losses as a function of gate resistor

$$E = f(R_g)$$



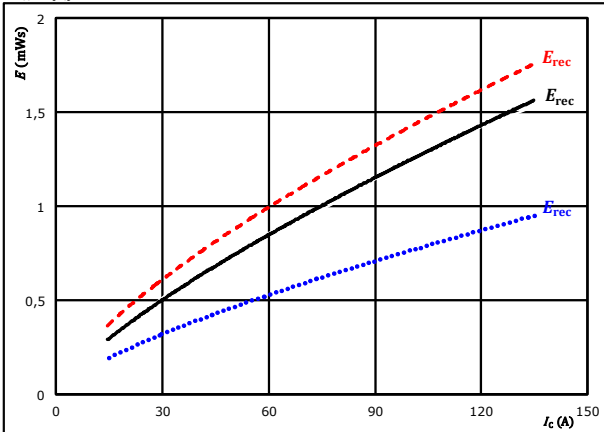
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $I_C = 75$  A

$T_j$ : 25 °C (blue dotted line)  
 125 °C (black solid line)  
 150 °C (red dashed line)

**figure 3.** FWD

Typical reverse recovered energy loss as a function of collector current

$$E_{rec} = f(I_C)$$



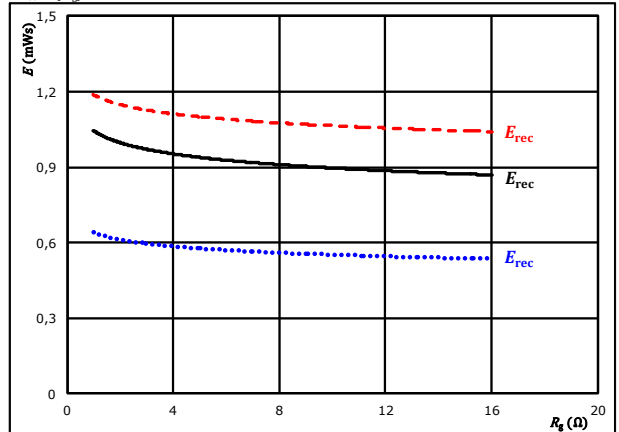
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $R_{g\text{on}} = 4$   $\Omega$

$T_j$ : 25 °C (blue dotted line)  
 125 °C (black solid line)  
 150 °C (red dashed line)

**figure 4.** FWD

Typical reverse recovered energy loss as a function of gate resistor

$$E_{rec} = f(R_g)$$



With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $I_C = 75$  A

$T_j$ : 25 °C (blue dotted line)  
 125 °C (black solid line)  
 150 °C (red dashed line)



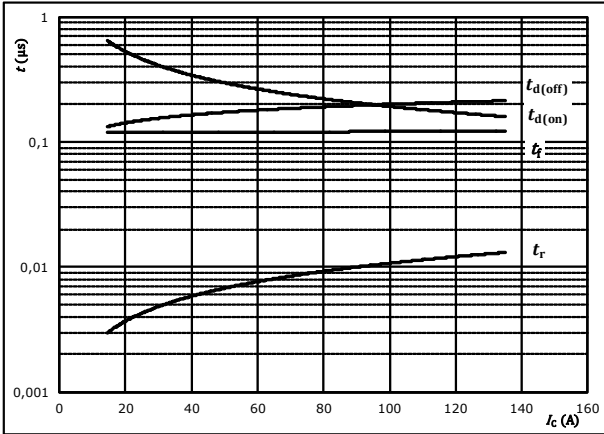
Vincotech

## Low Boost Switching Characteristics

**figure 5.** IGBT

Typical switching times as a function of collector current

$$t = f(I_c)$$



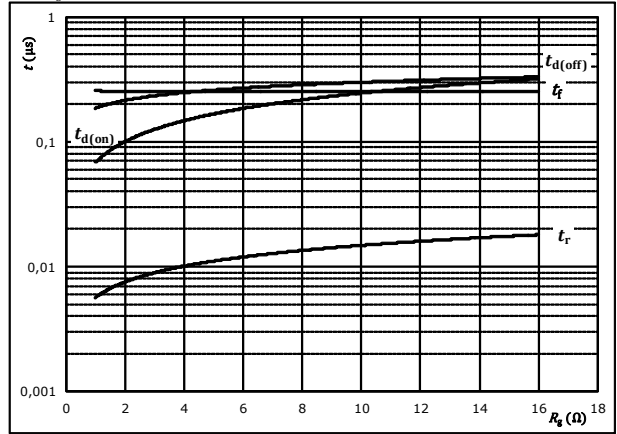
With an inductive load at

$T_j =$	150	°C
$V_{CE} =$	350	V
$V_{GE} =$	±15	V
$R_{g(on)} =$	4	Ω
$R_{g(off)} =$	4	Ω

**figure 6.** IGBT

Typical switching times as a function of gate resistor

$$t = f(R_g)$$



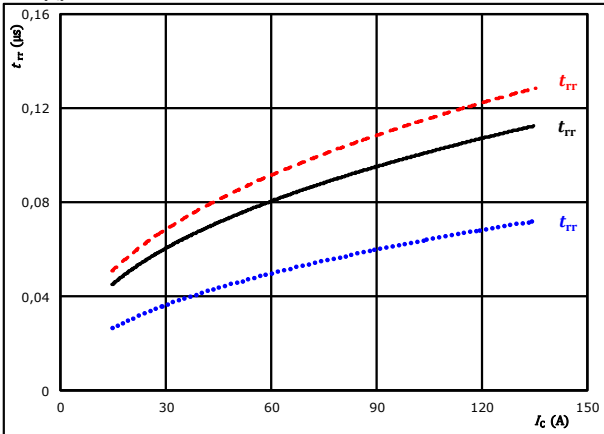
With an inductive load at

$T_j =$	150	°C
$V_{CE} =$	350	V
$V_{GE} =$	±15	V
$I_C =$	75	A

**figure 7.** FWD

Typical reverse recovery time as a function of collector current

$$t_{rr} = f(I_c)$$

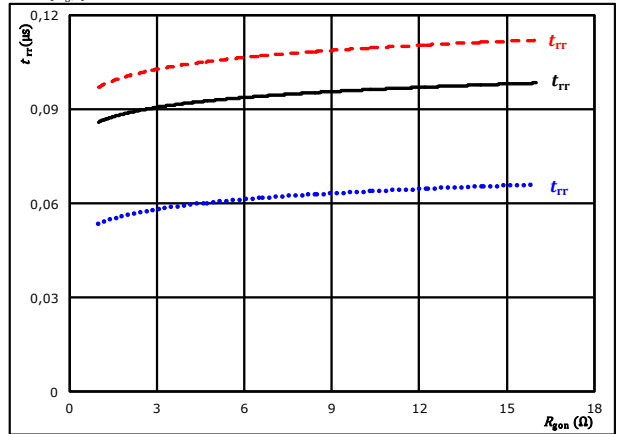


At	$V_{CE} =$	350	V	$T_j:$	25 °C	.....
	$V_{GE} =$	±15	V		125 °C	————
	$R_{g(on)} =$	4	Ω		150 °C	- - - -

**figure 8.** FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor

$$t_{rr} = f(R_{g(on)})$$



At	$V_{CE} =$	350	V	$T_j:$	25 °C	.....
	$V_{GE} =$	±15	V		125 °C	————
	$I_C =$	75	A		150 °C	- - - -

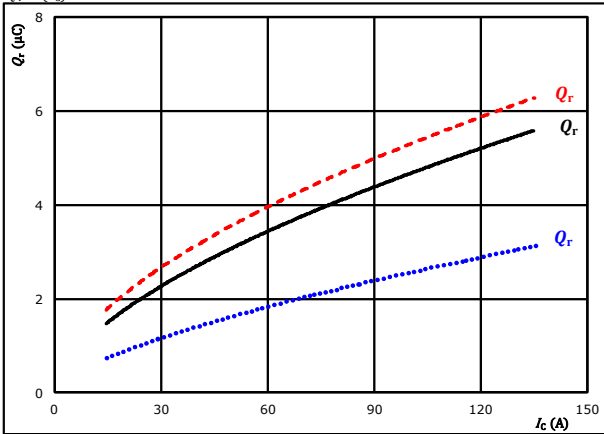


## Low Boost Switching Characteristics

**figure 9.** FWD

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$

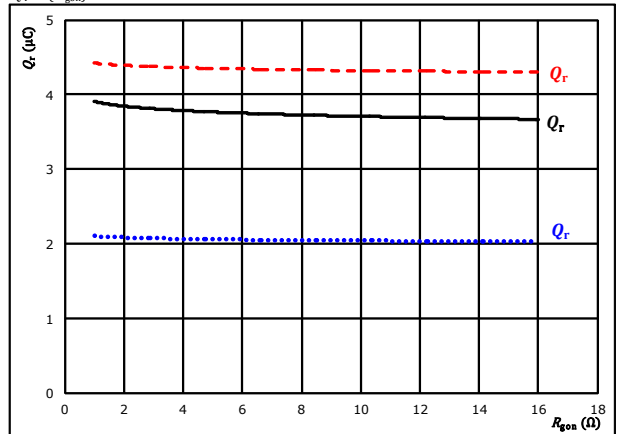


At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $R_{gdn} = 4$  Ω  $T_j: 150$  °C

**figure 10.** FWD

Typical recovered charge as a function of IGBT turn on gate resistor

$$Q_r = f(R_{gdn})$$

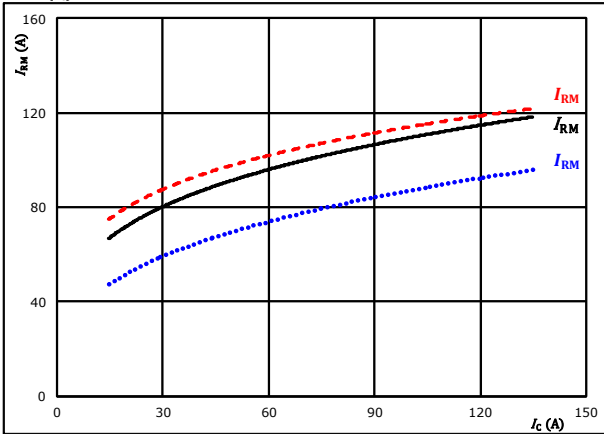


At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $I_c = 75$  A  $T_j: 150$  °C

**figure 11.** FWD

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$

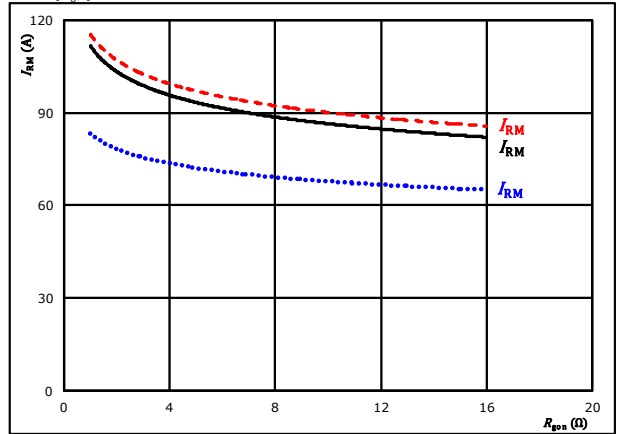


At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $R_{gdn} = 4$  Ω  $T_j: 150$  °C

**figure 12.** FWD

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$$I_{RM} = f(R_{gdn})$$



At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $I_c = 75$  A  $T_j: 150$  °C

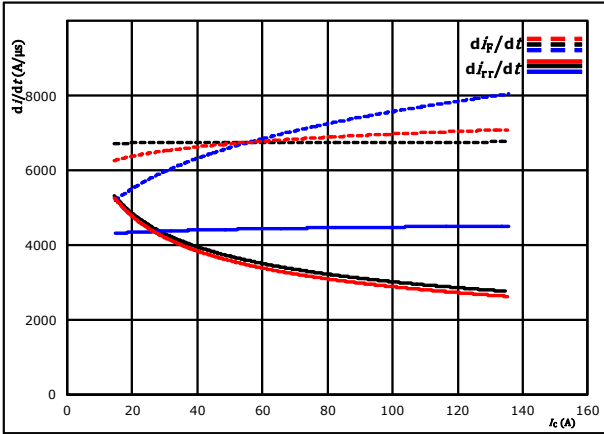


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## Low Boost Switching Characteristics

**figure 13.** FWD

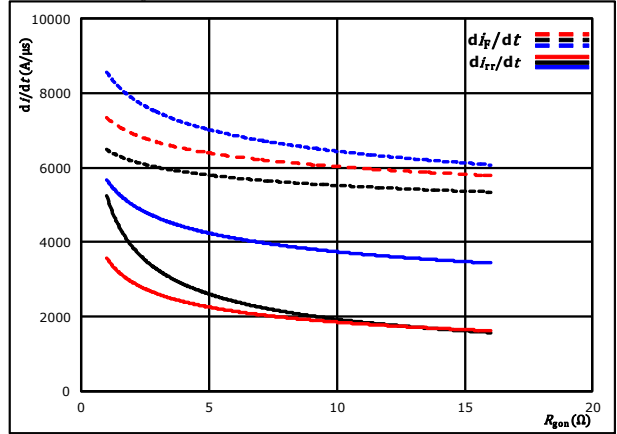
Typical rate of fall of forward and reverse recovery current as a function of collector current  
 $di_f/dt, di_{rr}/dt = f(I_c)$



At  $V_{CE} = 350$  V  $T_j = 25$  °C  
 $V_{GE} = \pm 15$  V  $T_j = 125$  °C  
 $R_{gpn} = 4$  Ω  $T_j = 150$  °C

**figure 14.** FWD

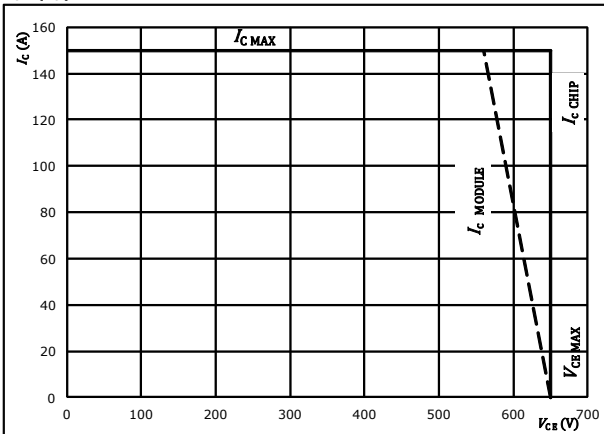
Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor  
 $di_f/dt, di_{rr}/dt = f(R_{gon})$



At  $V_{CE} = 350$  V  $T_j = 25$  °C  
 $V_{GE} = \pm 15$  V  $T_j = 125$  °C  
 $I_c = 75$  A  $T_j = 150$  °C

**figure 15.** IGBT

Reverse bias safe operating area  
 $I_c = f(V_{CE})$



At  $T_j = 175$  °C  
 $R_{gpn} = 4$  Ω  
 $R_{goff} = 4$  Ω



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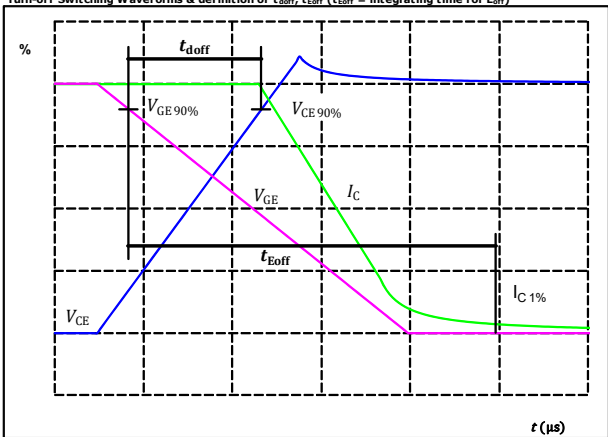
## Low Boost Switching Definitions

**General conditions**

$T_j$	=	125 °C
$R_{gon}$	=	4 $\Omega$
$R_{goff}$	=	4 $\Omega$

**figure 1.** IGBT

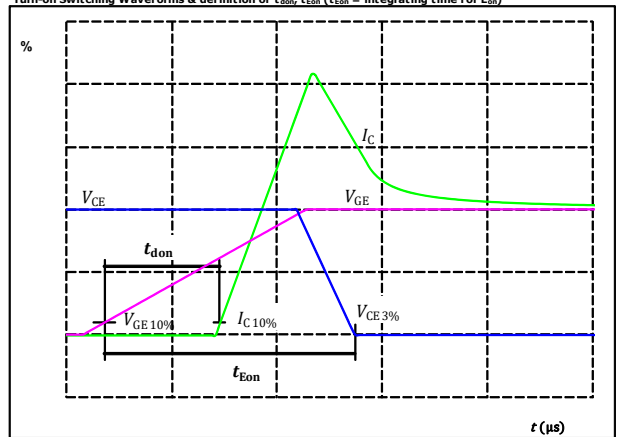
Turn-off Switching Waveforms & definition of  $t_{doff}$ ,  $t_{Eoff}$  ( $t_{Eoff}$  = integrating time for  $E_{off}$ )



$V_{CE}(0\%) =$	-15	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_{doff} =$	215	ns

**figure 2.** IGBT

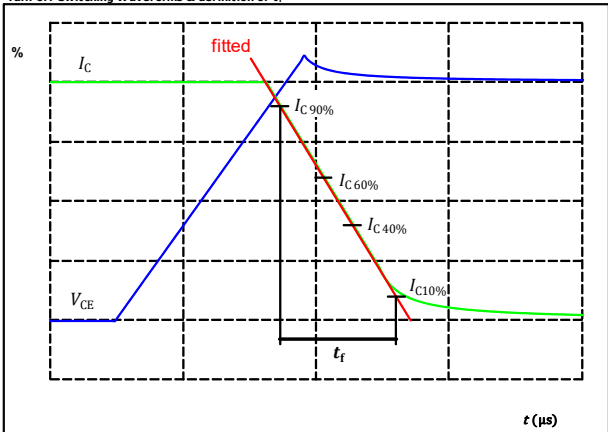
Turn-on Switching Waveforms & definition of  $t_{don}$ ,  $t_{Eon}$  ( $t_{Eon}$  = integrating time for  $E_{on}$ )



$V_{CE}(0\%) =$	-15	V
$V_{CE}(100\%) =$	15	V
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_{don} =$	121	ns

**figure 3.** IGBT

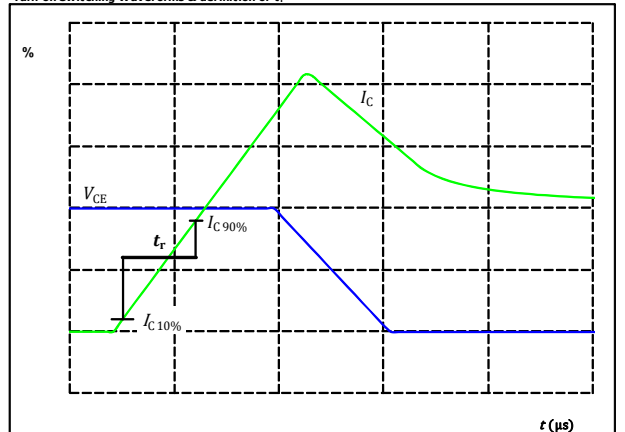
Turn-off Switching Waveforms & definition of  $t_f$



$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_f =$	217	ns

**figure 4.** IGBT

Turn-on Switching Waveforms & definition of  $t_r$



$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_r =$	8	ns

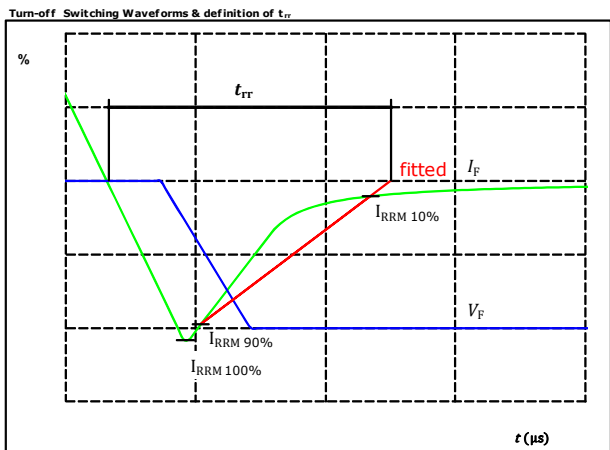


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**10-FY07HVA075S5-L985F08**  
**10-PY07HVA075S5-L985F08Y**  
 datasheet

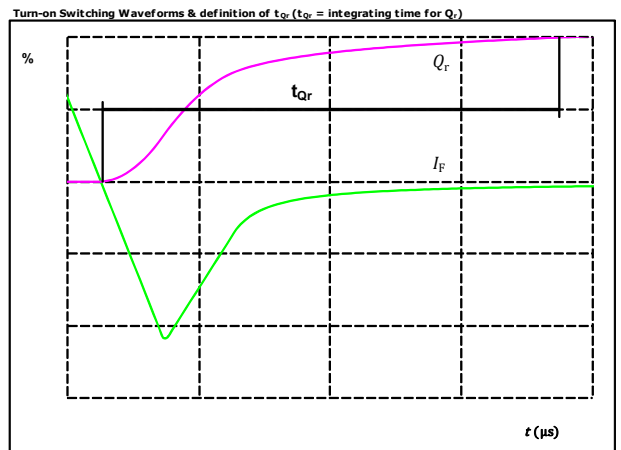
## Low Boost Switching Characteristics

figure 5. FWD



$V_F(100\%) =$	350	V
$I_F(100\%) =$	75	A
$I_{RRM}(100\%) =$	101	A
$t_{rr} =$	89	ns

figure 6. FWD



$I_F(100\%) =$	75	A
$Q_r(100\%) =$	3,82	$\mu\text{C}$

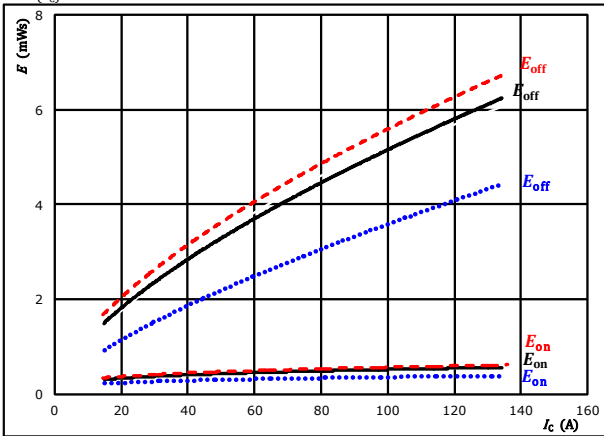


## High Boost Switching Characteristics

**figure 1.** IGBT

Typical switching energy losses as a function of collector current

$$E = f(I_C)$$



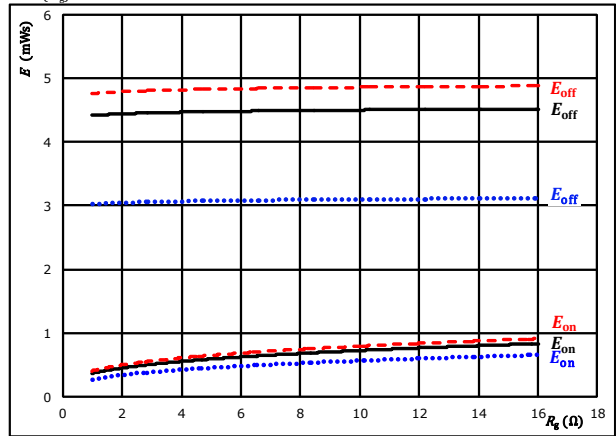
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $R_{gon} = 4$   $\Omega$   
 $R_{goff} = 4$   $\Omega$

$T_j$ : 25 °C (blue dotted), 125 °C (black solid), 150 °C (red dashed)

**figure 2.** IGBT

Typical switching energy losses as a function of gate resistor

$$E = f(R_g)$$



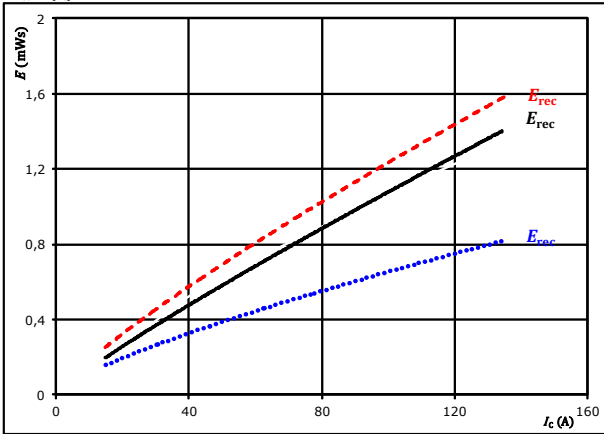
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $I_C = 75$  A

$T_j$ : 25 °C (blue dotted), 125 °C (black solid), 150 °C (red dashed)

**figure 3.** FWD

Typical reverse recovered energy loss as a function of collector current

$$E_{rec} = f(I_C)$$



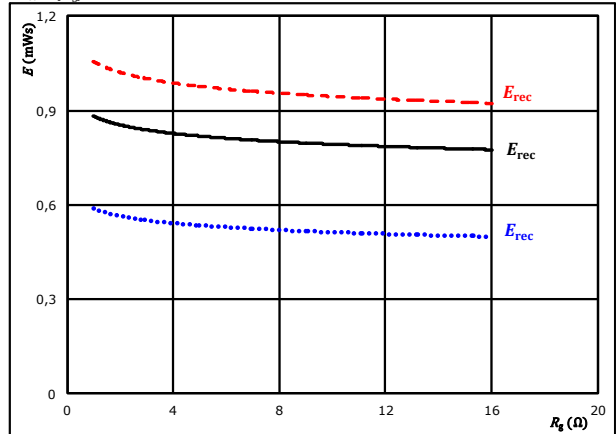
With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $R_{gon} = 4$   $\Omega$

$T_j$ : 25 °C (blue dotted), 125 °C (black solid), 150 °C (red dashed)

**figure 4.** FWD

Typical reverse recovered energy loss as a function of gate resistor

$$E_{rec} = f(R_g)$$



With an inductive load at  
 $V_{CE} = 350$  V  
 $V_{GE} = \pm 15$  V  
 $I_C = 75$  A

$T_j$ : 25 °C (blue dotted), 125 °C (black solid), 150 °C (red dashed)



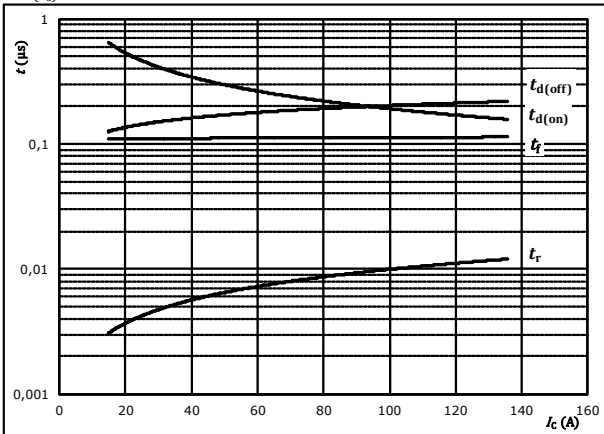
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## High Boost Switching Characteristics

**figure 5.** IGBT

Typical switching times as a function of collector current

$$t = f(I_C)$$



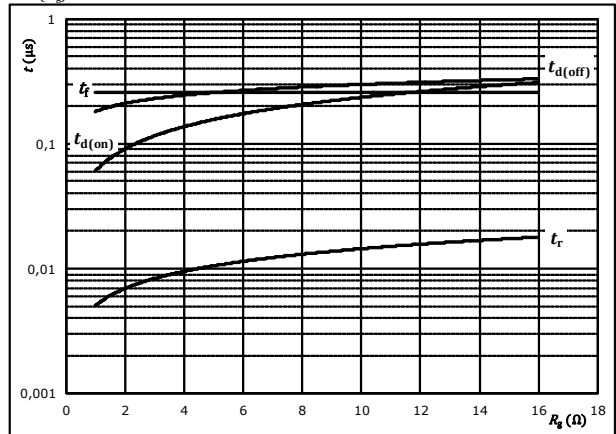
With an inductive load at

$T_j =$	150	°C
$V_{CE} =$	350	V
$V_{GE} =$	±15	V
$R_{g(on)} =$	4	Ω
$R_{g(off)} =$	4	Ω

**figure 6.** IGBT

Typical switching times as a function of gate resistor

$$t = f(R_g)$$



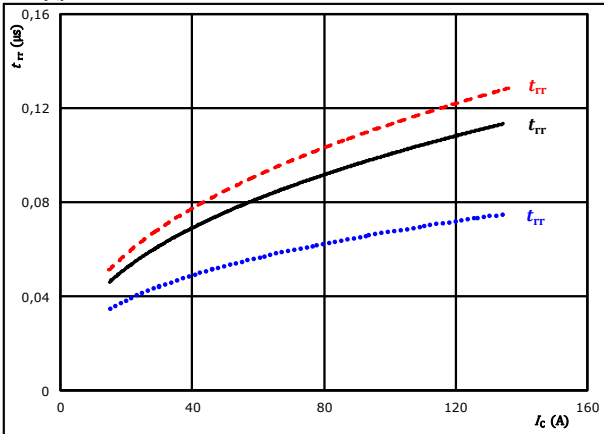
With an inductive load at

$T_j =$	150	°C
$V_{CE} =$	350	V
$V_{GE} =$	±15	V
$I_C =$	75	A

**figure 7.** FWD

Typical reverse recovery time as a function of collector current

$$t_{rr} = f(I_C)$$

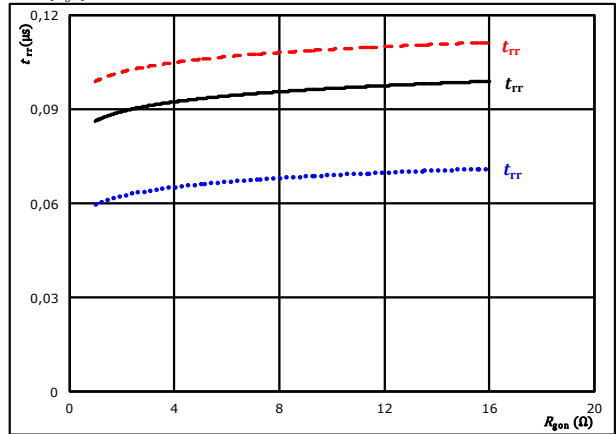


At	$V_{CE} =$	350	V	$T_j:$	25 °C	.....
	$V_{GE} =$	±15	V		125 °C	————
	$R_{g(on)} =$	4	Ω		150 °C	- - - -

**figure 8.** FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor

$$t_{rr} = f(R_{g(on)})$$



At	$V_{CE} =$	350	V	$T_j:$	25 °C	.....
	$V_{GE} =$	±15	V		125 °C	————
	$I_C =$	75	A		150 °C	- - - -



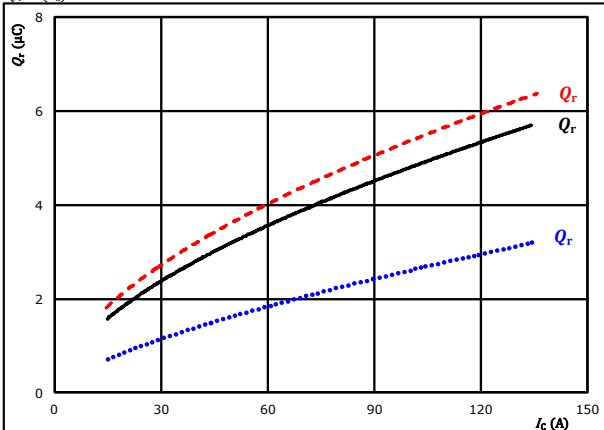


## High Boost Switching Characteristics

**figure 9.** FWD

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$

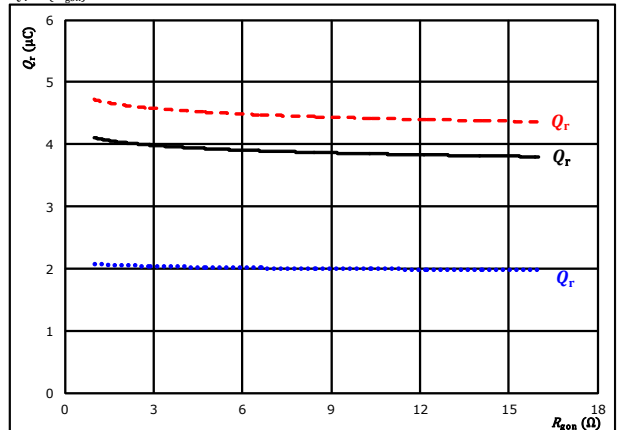


At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $R_{gon} = 4$  Ω  $T_j: 150$  °C

**figure 10.** FWD

Typical recovered charge as a function of IGBT turn on gate resistor

$$Q_r = f(R_{gon})$$

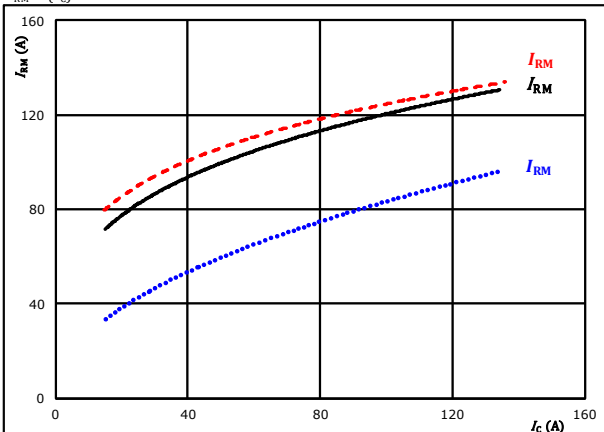


At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $I_c = 75$  A  $T_j: 150$  °C

**figure 11.** FWD

Typical peak reverse recovery current current as a function of collector current

$$I_{RM} = f(I_c)$$

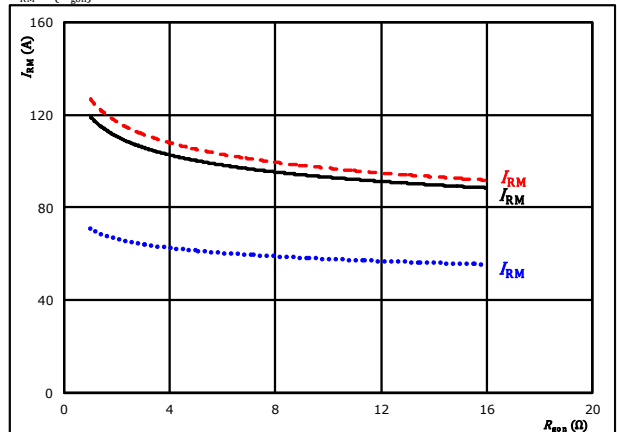


At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $R_{gon} = 4$  Ω  $T_j: 150$  °C

**figure 12.** FWD

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$$I_{RM} = f(R_{gon})$$



At  $V_{CE} = 350$  V  $T_j: 25$  °C  $V_{GE} = \pm 15$  V  $T_j: 125$  °C  $I_c = 75$  A  $T_j: 150$  °C

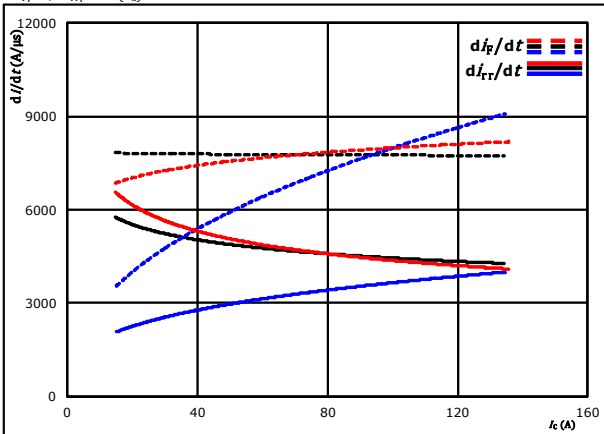


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## High Boost Switching Characteristics

**figure 13.** FWD

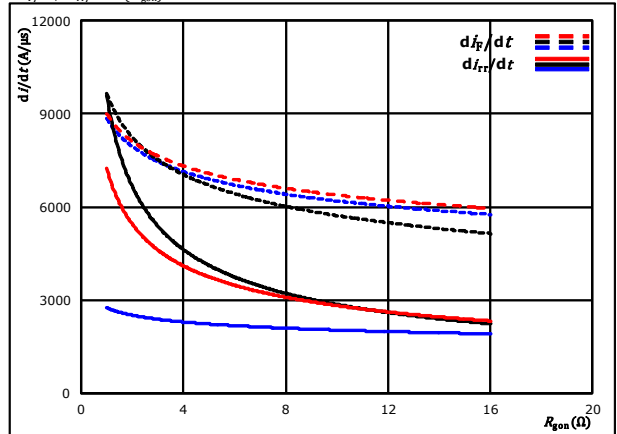
Typical rate of fall of forward and reverse recovery current as a function of collector current  
 $di_f/dt, di_{rr}/dt = f(I_c)$



At  $V_{CE} = 350$  V  $T_j = 25$  °C  
 $V_{GE} = \pm 15$  V  $T_j = 125$  °C  
 $R_{g(on)} = 4$  Ω  $T_j = 150$  °C

**figure 14.** FWD

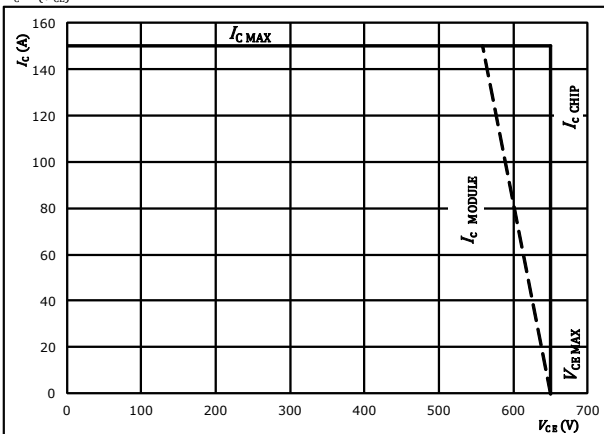
Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor  
 $di_f/dt, di_{rr}/dt = f(R_{g(on)})$



At  $V_{CE} = 350$  V  $T_j = 25$  °C  
 $V_{GE} = \pm 15$  V  $T_j = 125$  °C  
 $I_c = 75$  A  $T_j = 150$  °C

**figure 15.** IGBT

Reverse bias safe operating area  
 $I_c = f(V_{CE})$



At  $T_j = 175$  °C  
 $R_{g(on)} = 4$  Ω  
 $R_{g(off)} = 4$  Ω



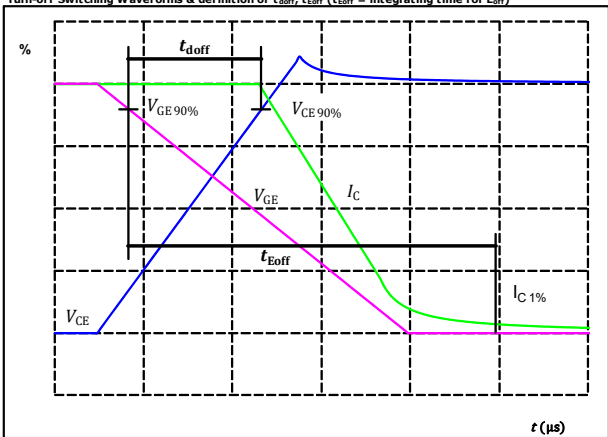
## High Boost Switching Definitions

**General conditions**

$T_j$	=	125 °C
$R_{gon}$	=	4 $\Omega$
$R_{goff}$	=	4 $\Omega$

**figure 1.** IGBT

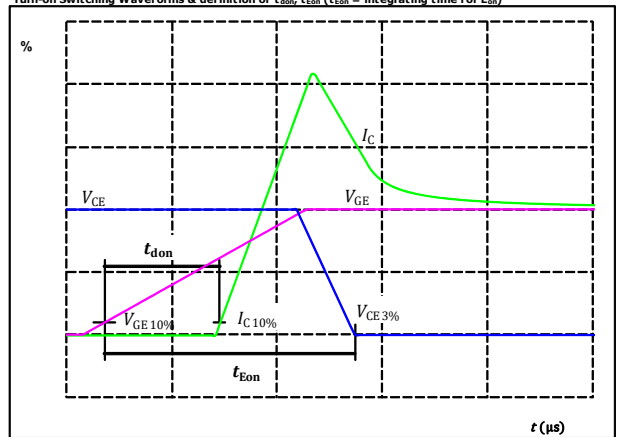
Turn-off Switching Waveforms & definition of  $t_{doff}$ ,  $t_{Eoff}$  ( $t_{Eoff}$  = integrating time for  $E_{off}$ )



$V_{CE}(0\%) =$	-15	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_{doff} =$	214	ns

**figure 2.** IGBT

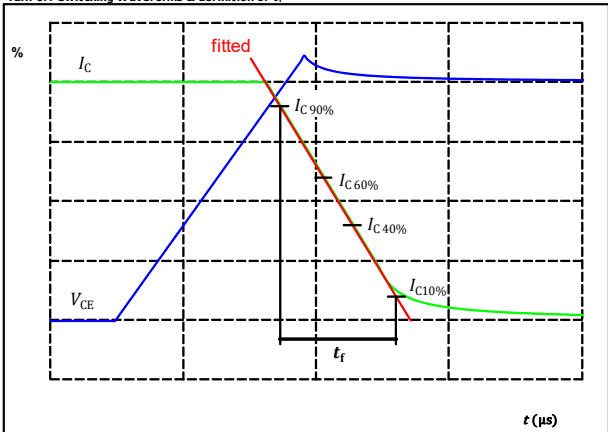
Turn-on Switching Waveforms & definition of  $t_{don}$ ,  $t_{Eon}$  ( $t_{Eon}$  = integrating time for  $E_{on}$ )



$V_{CE}(0\%) =$	-15	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_{don} =$	112	ns

**figure 3.** IGBT

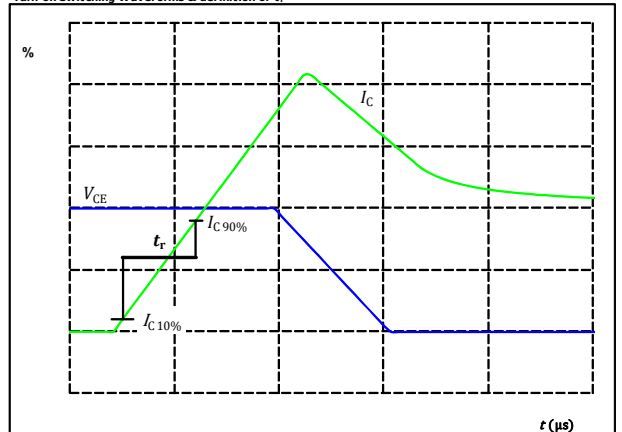
Turn-off Switching Waveforms & definition of  $t_f$



$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_f =$	218	ns

**figure 4.** IGBT

Turn-on Switching Waveforms & definition of  $t_r$

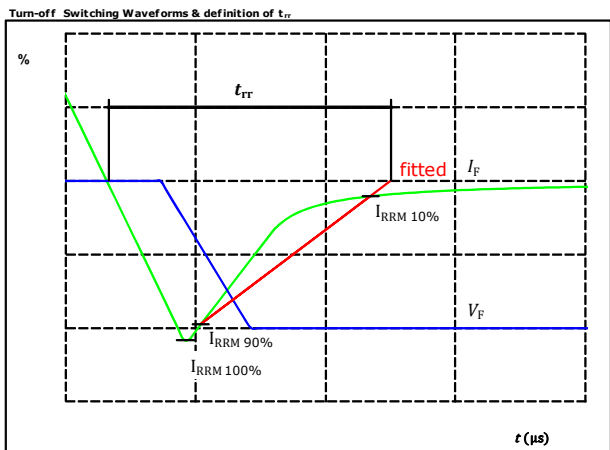


$V_C(100\%) =$	350	V
$I_C(100\%) =$	75	A
$t_r =$	7	ns



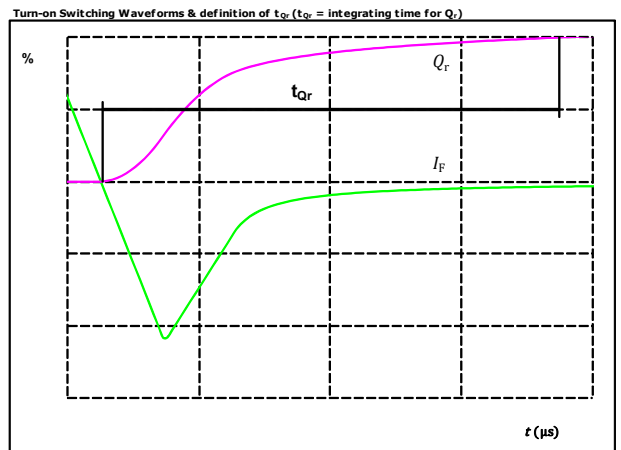
## High Boost Switching Characteristics

**figure 5.** FWD



$V_F(100\%) =$	350	V
$I_F(100\%) =$	75	A
$I_{RRM}(100\%) =$	109	A
$t_{rr} =$	91	ns

**figure 6.** FWD



$I_F(100\%) =$	75	A
$Q_r(100\%) =$	4,02	$\mu\text{C}$



**10-FY07HVA075S5-L985F08**  
**10-PY07HVA075S5-L985F08Y**  
 datasheet

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Ordering Code & Marking						
<b>Version</b>			<b>Ordering Code</b>			
without thermal paste 12 mm housing with solder pins			10-FY07HVA075S5-L985F08			
without thermal paste 12 mm housing with press-fit pins			10-PY07HVA075S5-L985F08Y			
NN-NNNNNNNNNNNNNN TTTTWW WWYY UL VIN LLLL SSSS						
<b>Text</b>	<b>Name</b>		<b>Date code</b>	<b>UL &amp; VIN</b>	<b>Lot</b>	<b>Serial</b>
	NN-NNNNNNNNNNNNNN-TTTTWW		WWYY	UL VIN	LLLL	SSSS
<b>Datamatrix</b>	<b>Type&amp;Ver</b>	<b>Lot number</b>	<b>Serial</b>	<b>Date code</b>		
	TTTTTWW	LLLL	SSSS	WWYY		

Pin table			
Pin	X	Y	Function
1	52,2	0	G14
2	49,2	0	S14
3	Not assembled		
4	26,1	0	Therm2
5	23,1	0	Therm1
6	3	0	S12
7	0	0	G12
8	0	8	DC+
9	0	10,5	DC+
10	0	17,7	DC-1
11	0	20,2	DC-1
12	0	28,2	G11
13	3	28,2	S11
14	10	28,2	G21
15	13	28,2	S21
16	20,35	28,2	Ph2
17	22,85	28,2	Ph2
18	29,35	28,2	Ph1
19	31,85	28,2	Ph1
20	39,2	28,2	S22
21	42,2	28,2	G22
22	49,2	28,2	S13
23	52,2	28,2	G13
24	52,2	20,2	DC-2
25	52,2	17,7	DC-2
26	52,2	10,5	DC+
27	52,2	8	DC+
28	26,1	22,1	A20

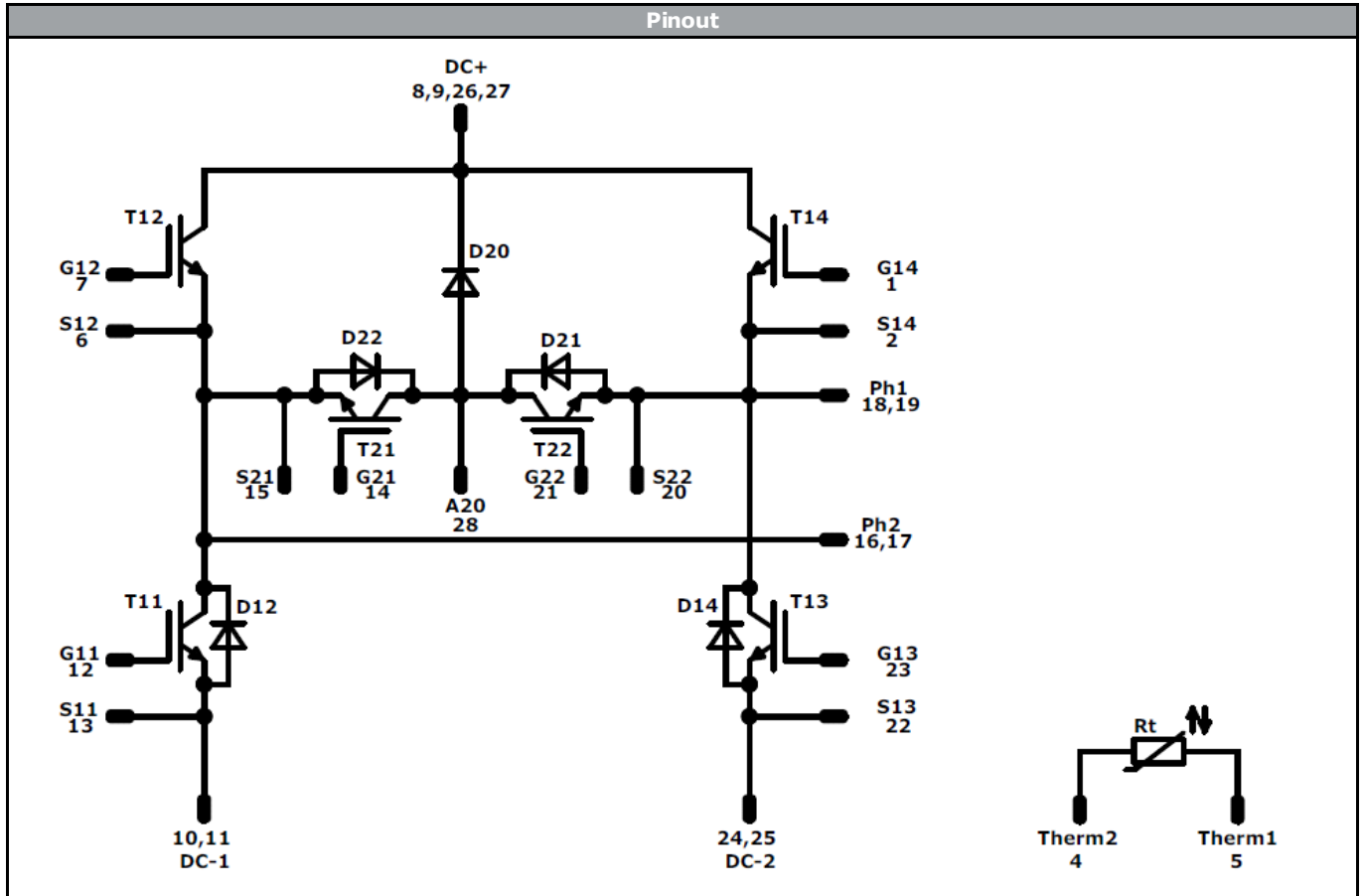
**Outline**

center of press-fit pinhead  
for connection parameter see the handling instruction

Tolerance of pinpositions: ±0.5mm at the end of pins  
Dimension of coordinate axis is only offset without tolerance



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<b>Identification</b>					
<b>ID</b>	<b>Component</b>	<b>Voltage</b>	<b>Current</b>	<b>Function</b>	<b>Comment</b>
T11 , T12 , T13, T14	IGBT	650 V	75 A	High Buck Switch / Low Buck Switch	
D21, D22	FWD	650 V	50 A	Buck Diode	
T21, T22	IGBT	650 V	75 A	Boost Switch	
D12, D14, D20	FWD	650 V	50 A	Low Boost Diode / High Boost diode	
Rt	NTC			Thermistor	




Vincotech

Packaging instruction			
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ Sample

Handling instruction
Handling instructions for <i>flow 1</i> packages see vincotech.com website.

Package data
Package data for <i>flow 1</i> packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
10-xY07HVA075S5-L985F08x-D3-14	04 Jul. 2019	Correction of I <sub>c</sub> /I <sub>f</sub> values	2

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As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in labelling can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.