



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

MCH6431 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=42m\Omega$ (typ.)
- 4V drive
- Halogen free compliance
- Protection diode in

Specifications

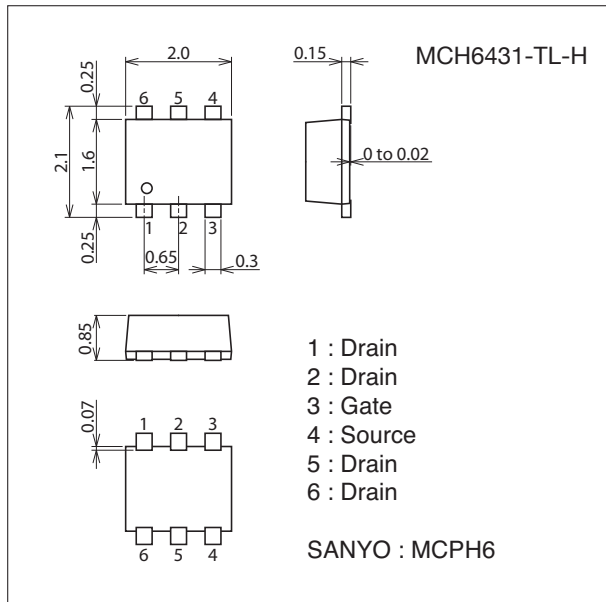
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	20	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1200mm ² ×0.8mm)	1.5	W
Channel Temperature	T_{ch}		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

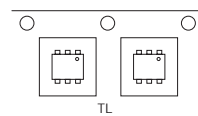
7022A-009



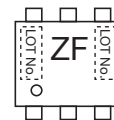
Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

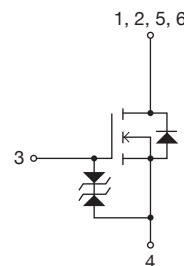
Packing Type : TL



Marking



Electrical Connection

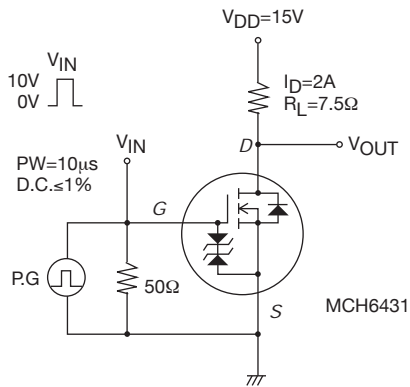


MCH6431

Electrical Characteristics at Ta=25°C

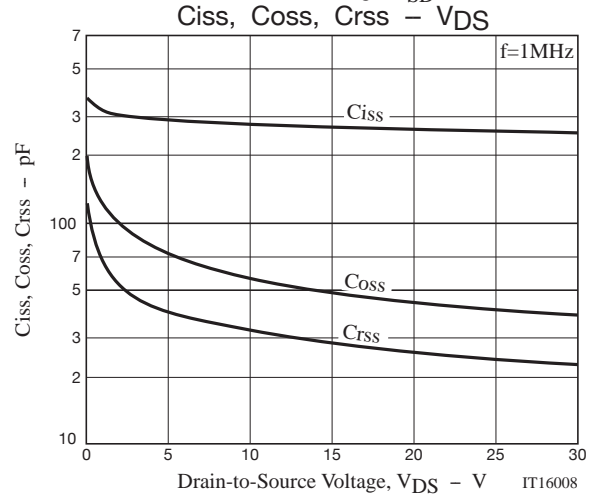
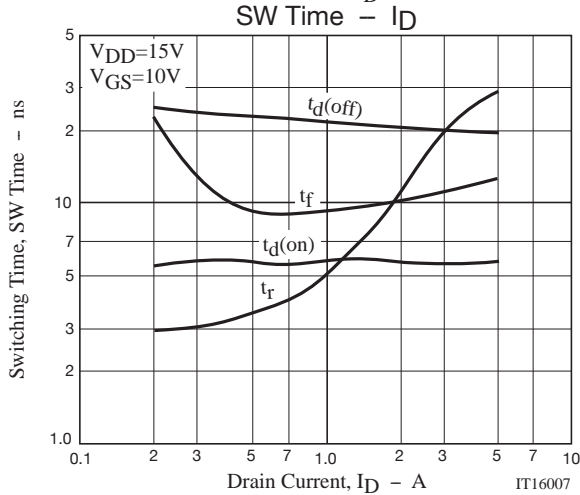
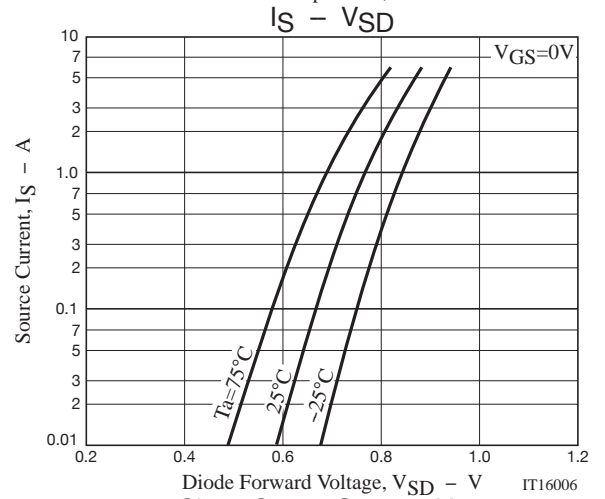
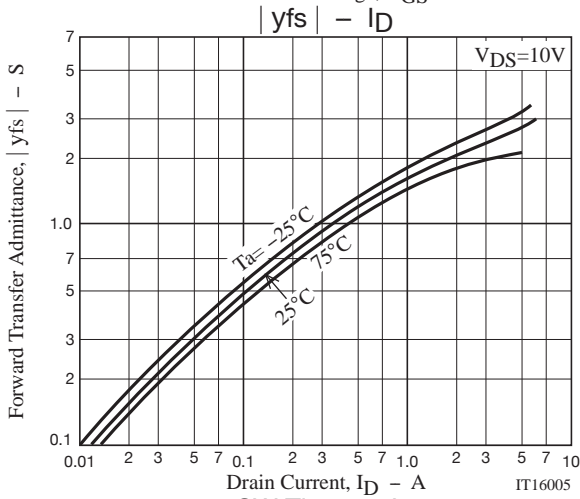
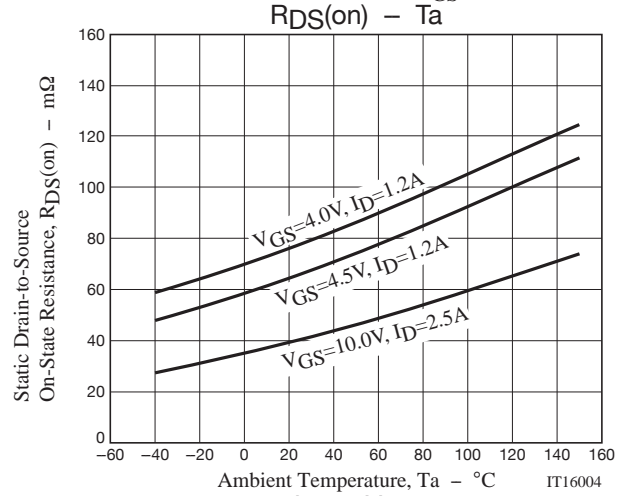
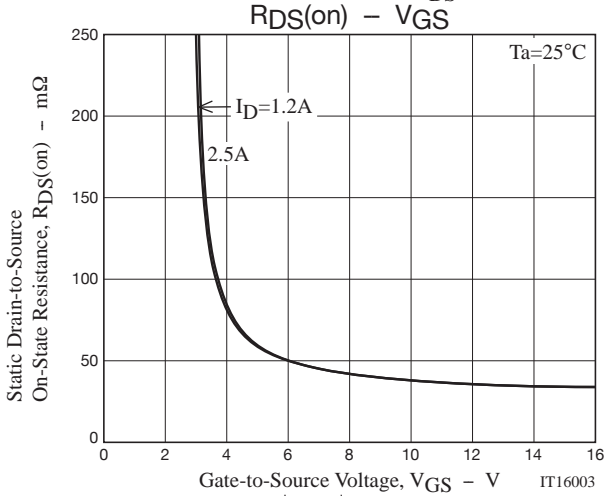
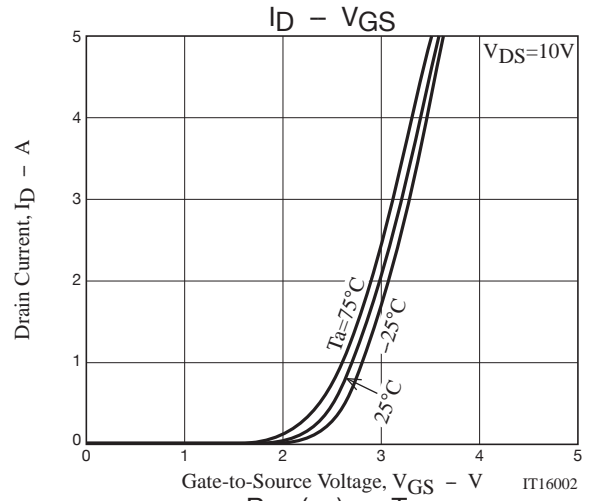
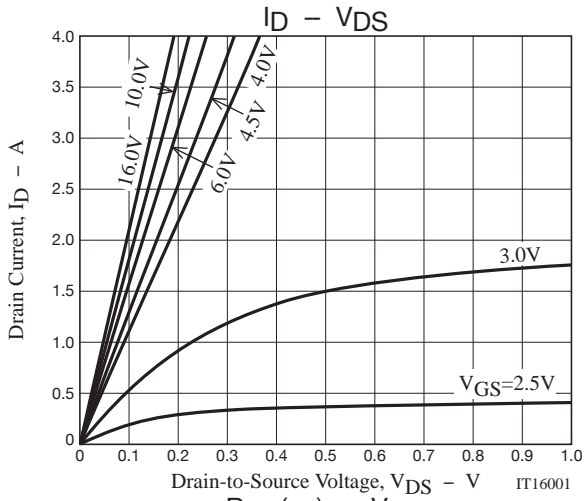
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0V	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =2.5A		2.2		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =2.5A, V _{GS} =10V		42	55	mΩ
	R _{DS(on)2}	I _D =1.2A, V _{GS} =4.5V		65	91	mΩ
	R _{DS(on)3}	I _D =1.2A, V _{GS} =4V		78	109	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		280		pF
Output Capacitance	C _{oss}			60		pF
Reverse Transfer Capacitance	C _{rss}			30		pF
Turn-ON Delay Time	t _{d(on)}		See specified Test Circuit.		5.7	
Rise Time	t _r			11		ns
Turn-OFF Delay Time	t _{d(off)}			21		ns
Fall Time	t _f			10		ns
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =5A			5.6	
Gate-to-Source Charge	Q _{gs}			1.2		nC
Gate-to-Drain "Miller" Charge	Q _{gd}			0.8		nC
Diode Forward Voltage	V _{SD}		I _S =5A, V _{GS} =0V		0.85	1.2

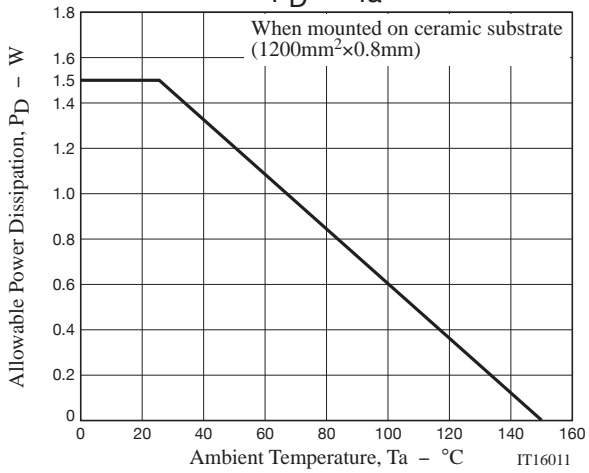
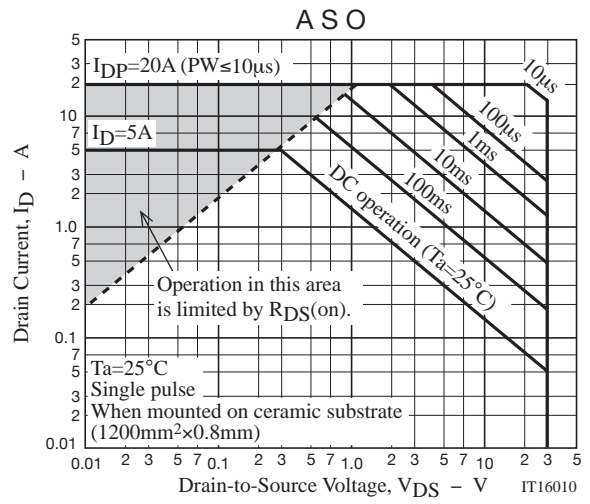
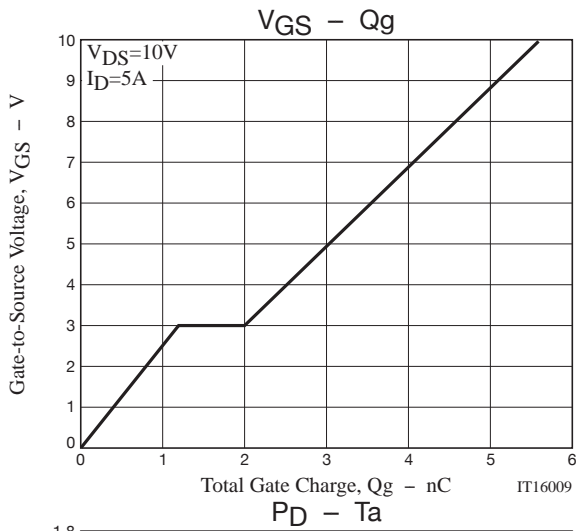
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
MCH6431-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free





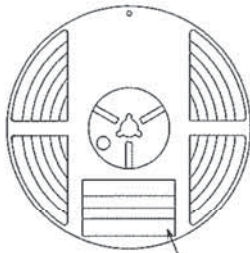
Taping Specification

MCH6431-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
MCPH6	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

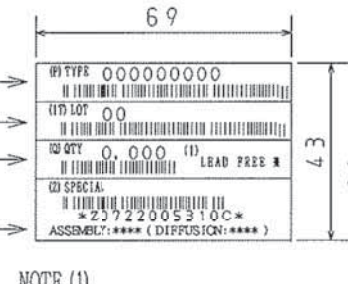
Packing method



Type No.
LOT No.
Quantity
Origin

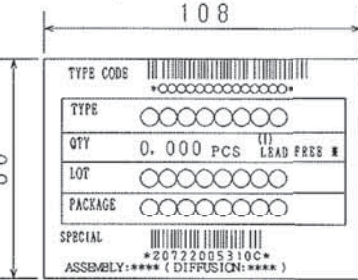
Reel label

Reel label, Inner box label
(unit:mm)



Outer box label

(It is a label at the time of factory shipments. The form of a label may change in physical distribution process.)



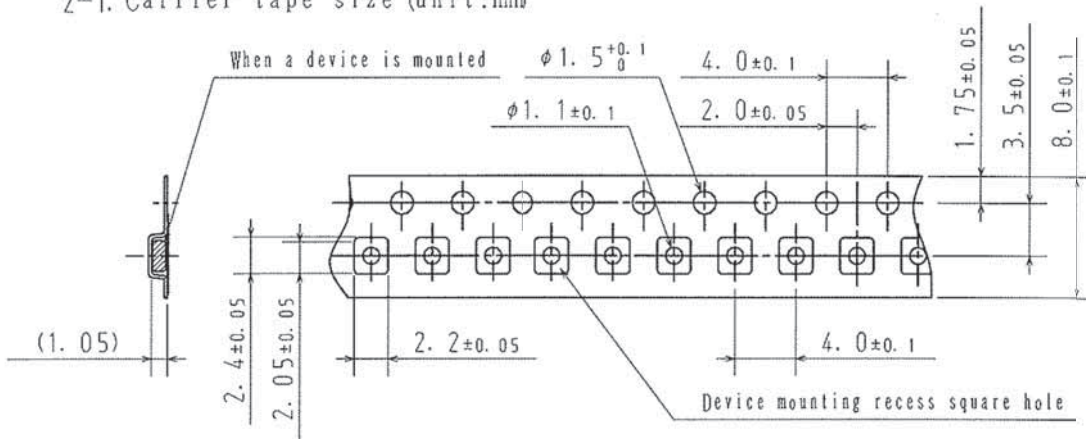
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

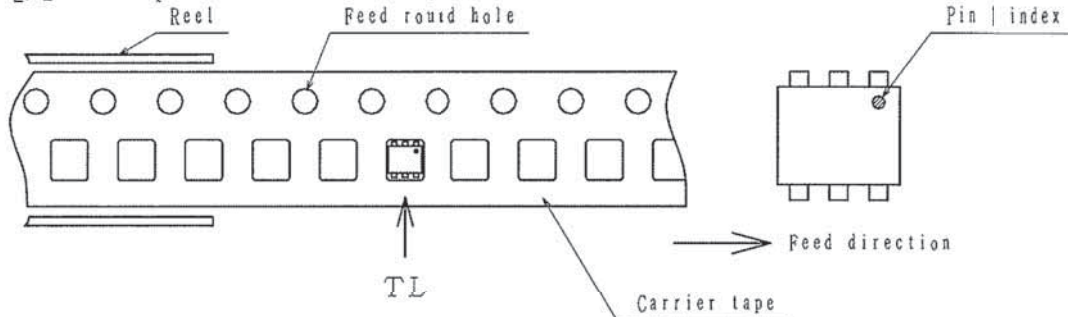
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



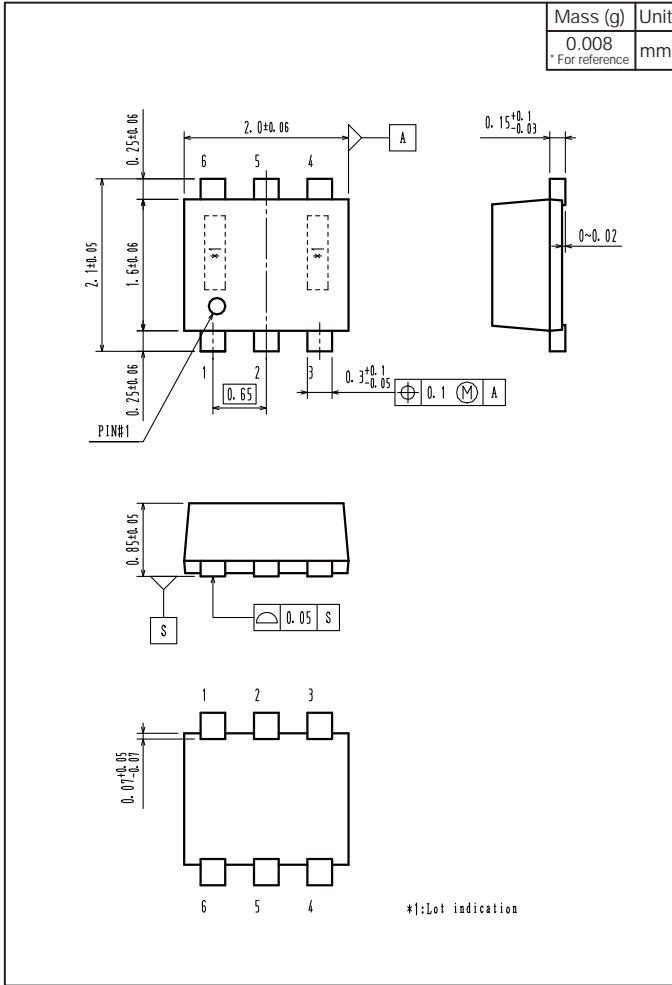
2-2. Device placement direction



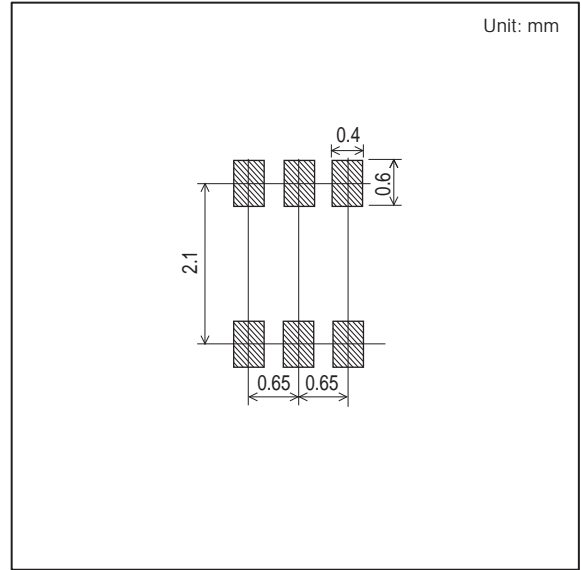
Those with pin | index on the feed hole side.....TL

MCH6431

Outline Drawing MCH6431-TL-H



Land Pattern Example



Note on usage : Since the MCH6431 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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