

N-Channel and P-Channel Silicon MOSFETs

MCH6663 — General-Purpose Switching Device Applications

Features

- ON-resistance Nch : $R_{DS(on)1}=145\text{m}\Omega(\text{typ.})$
Pch : $R_{DS(on)1}=250\text{m}\Omega(\text{typ.})$
- 4V drive
- Halogen free compliance
- Nch+Pch MOSFET

Specifications

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

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DSS}		30	-30	V
Gate-to-Source Voltage	V_{GSS}		± 20	± 20	V
Drain Current (DC)	I_D		1.8	-1.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	7.2	-6	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	0.8		W
Channel Temperature	T_{ch}		150		$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150		$^\circ\text{C}$

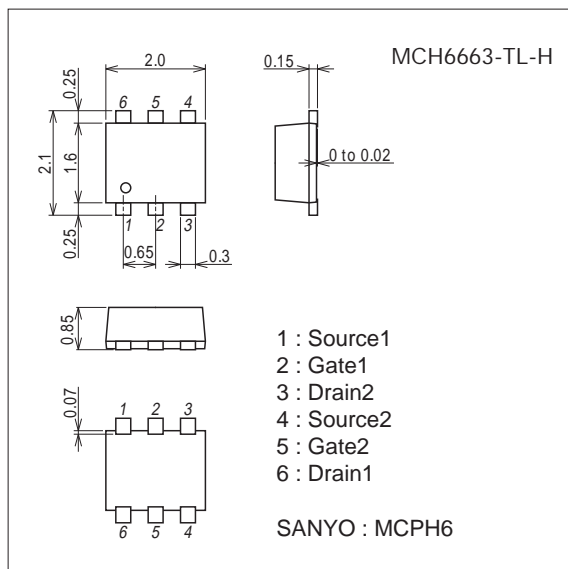
This product is designed to "ESD immunity < 200V**", so please take care when handling.

* Machine Model

Package Dimensions

unit : mm (typ)

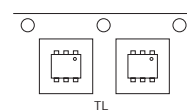
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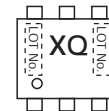
Product & Package Information

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

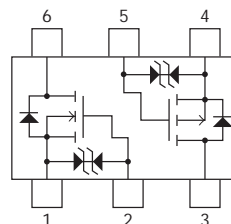
Packing Type : TL



Marking



Electrical Connection



MCH6663

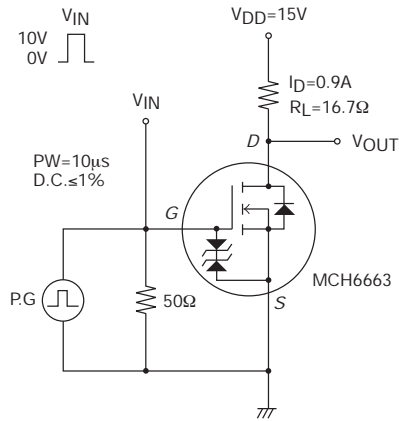
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=0.9A		1.1		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=0.9A, VGS=10V		145	188	mΩ
	RDS(on)2	ID=0.5A, VGS=4.5V		245	343	mΩ
	RDS(on)3	ID=0.5A, VGS=4V		270	378	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		88		pF
Output Capacitance	Coss			19		pF
Reverse Transfer Capacitance	Crss			11		pF
Turn-ON Delay Time	td(on)		See specified Test Circuit.		3.4	
Rise Time	tr			3.6		ns
Turn-OFF Delay Time	td(off)			10.5		ns
Fall Time	tf			4.0		ns
Total Gate Charge	Qg	VDS=15V, VGS=10V, ID=1.8A			2.0	
Gate-to-Source Charge	Qgs			0.33		nC
Gate-to-Drain "Miller" Charge	Qgd			0.29		nC
Diode Forward Voltage	VSD	IS=1.8A, VGS=0V		0.86	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-30V, VGS=0V			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-0.8A		1.3		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-0.8A, VGS=-10V		250	325	mΩ
	RDS(on)2	ID=-0.4A, VGS=-4.5V		397	555	mΩ
	RDS(on)3	ID=-0.4A, VGS=-4V		458	641	mΩ
Input Capacitance	Ciss	VDS=-10V, f=1MHz		82		pF
Output Capacitance	Coss			22		pF
Reverse Transfer Capacitance	Crss			16		pF
Turn-ON Delay Time	td(on)		See specified Test Circuit.		4.0	
Rise Time	tr			3.3		ns
Turn-OFF Delay Time	td(off)			12		ns
Fall Time	tf			5.4		ns
Total Gate Charge	Qg	VDS=-15V, VGS=-10V, ID=-1.5A			2.2	
Gate-to-Source Charge	Qgs			0.36		nC
Gate-to-Drain "Miller" Charge	Qgd			0.49		nC
Diode Forward Voltage	VSD	IS=-1.5A, VGS=0V		-0.9	-1.5	V

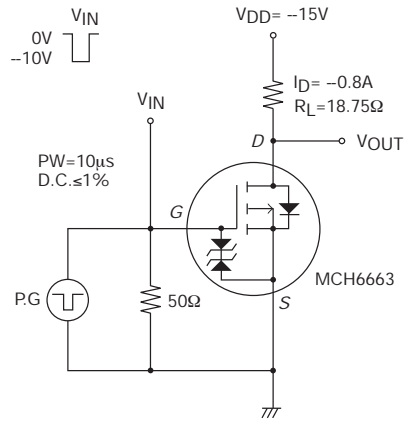
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Switching Time Test Circuit

[N-channel]

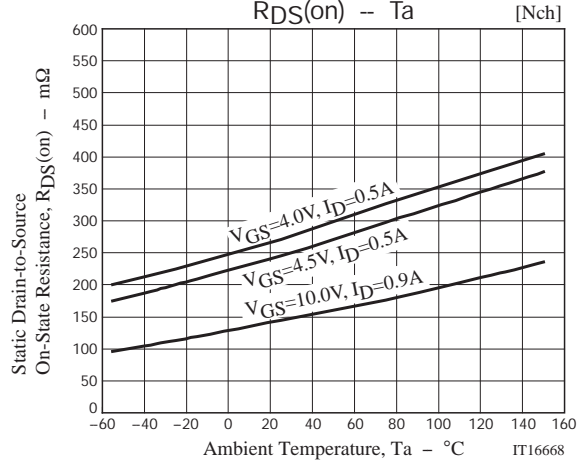
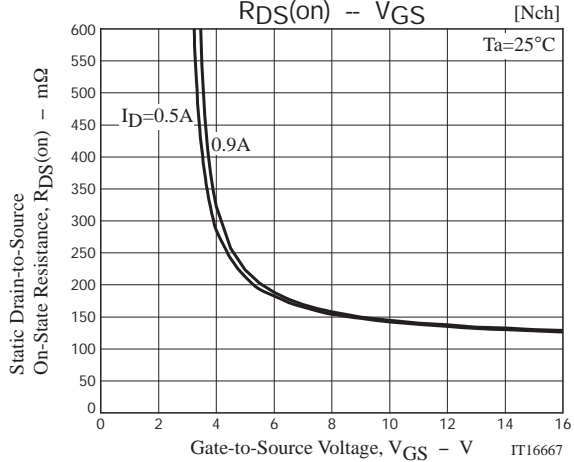
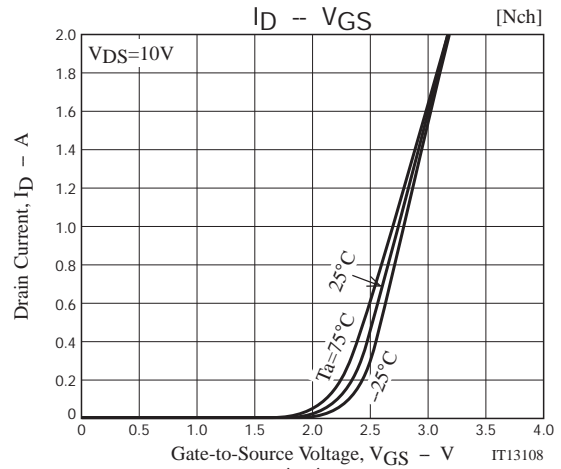
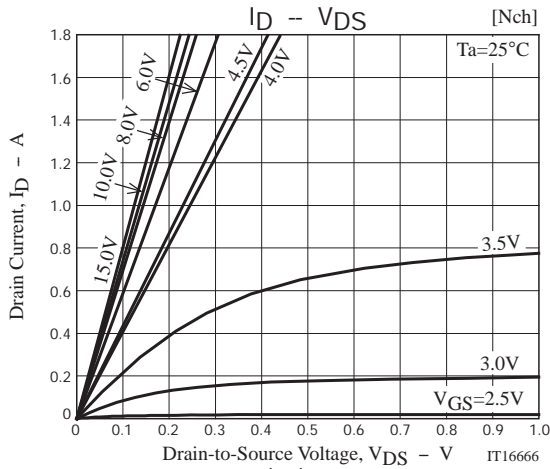


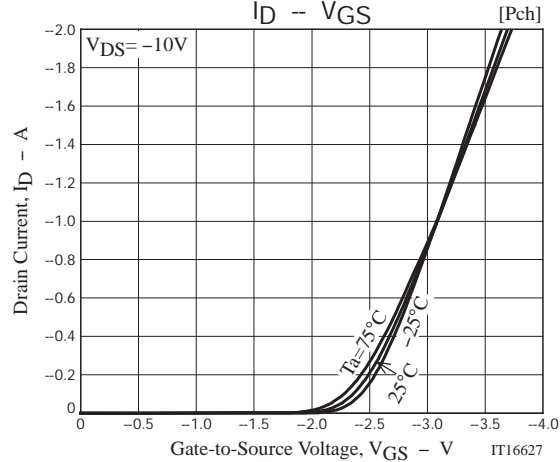
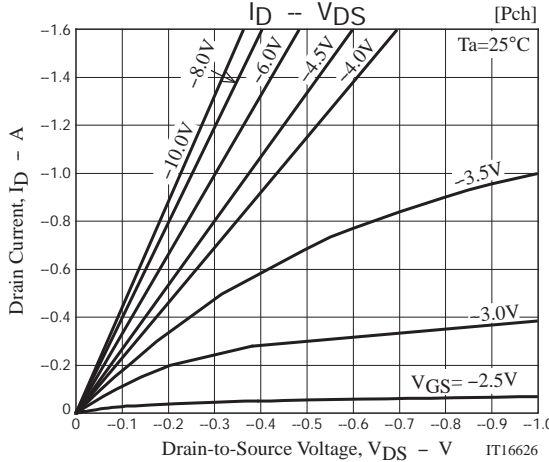
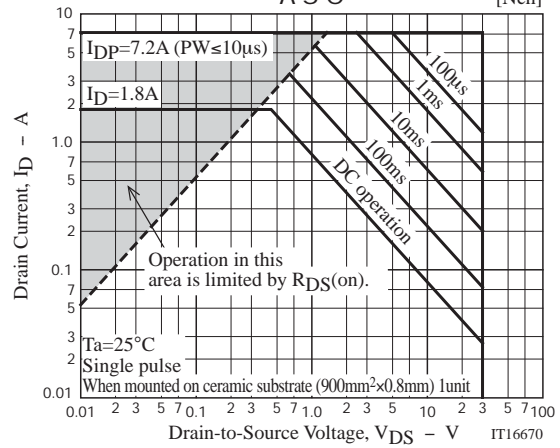
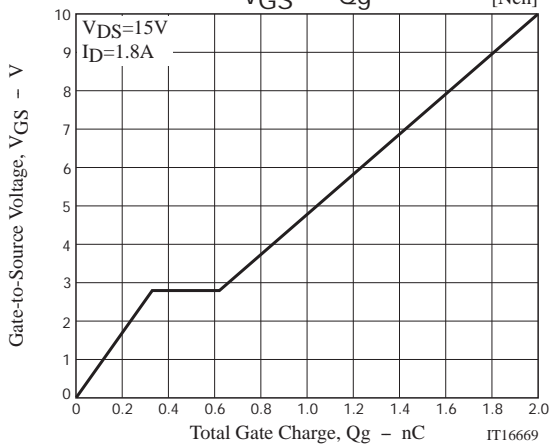
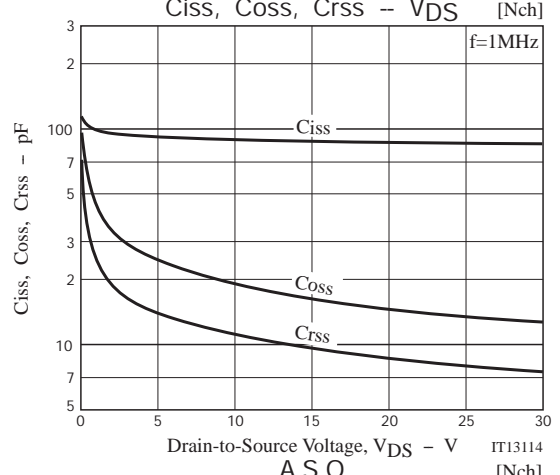
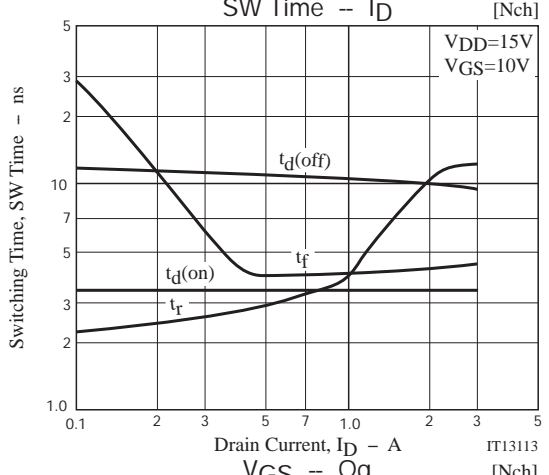
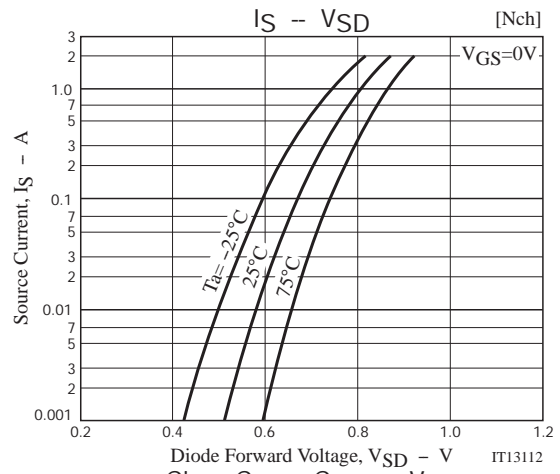
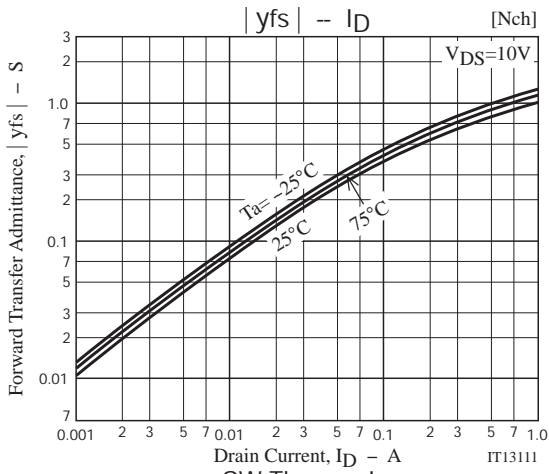
[P-channel]

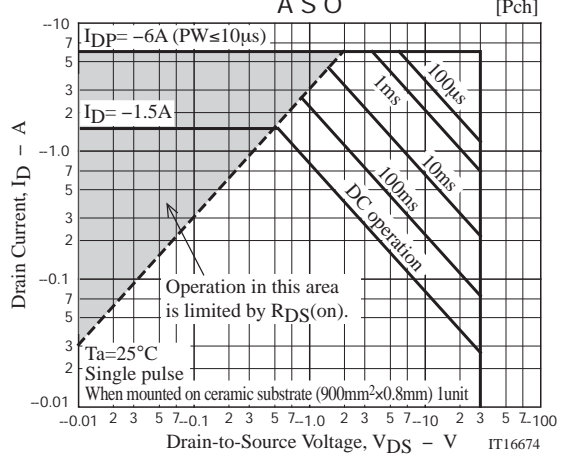
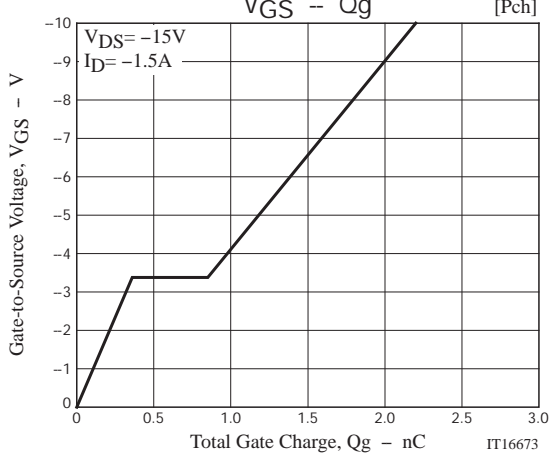
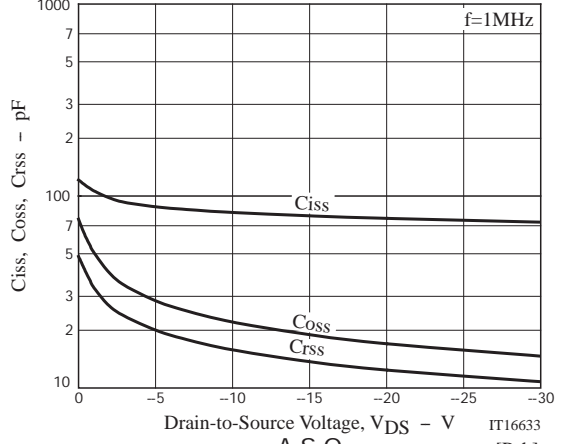
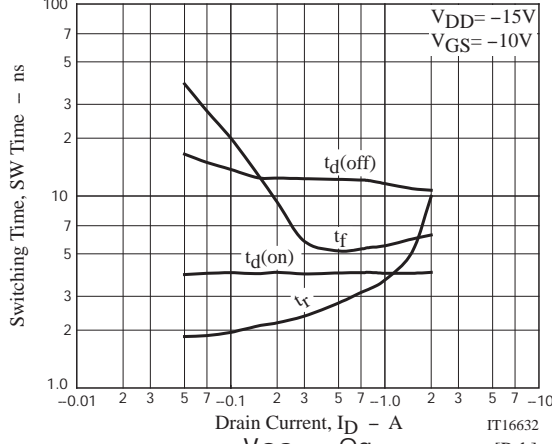
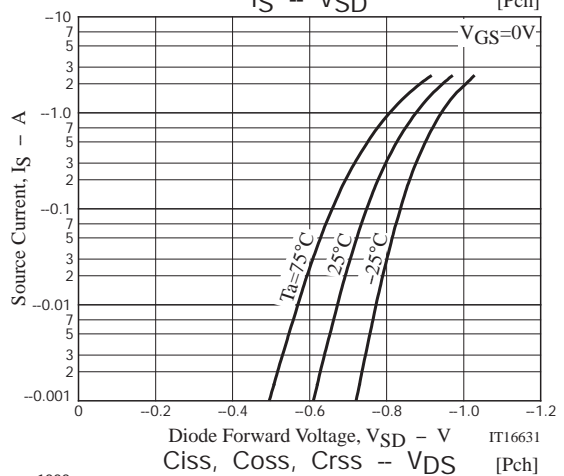
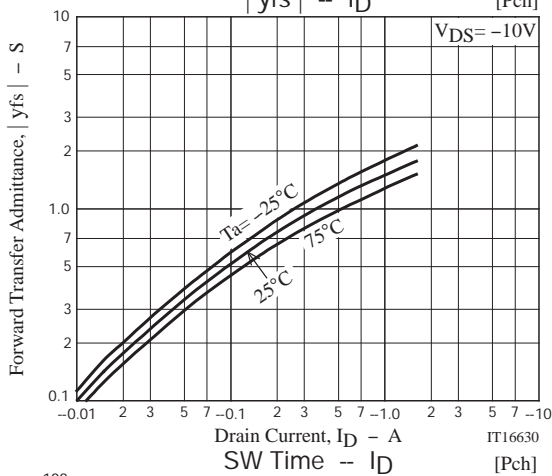
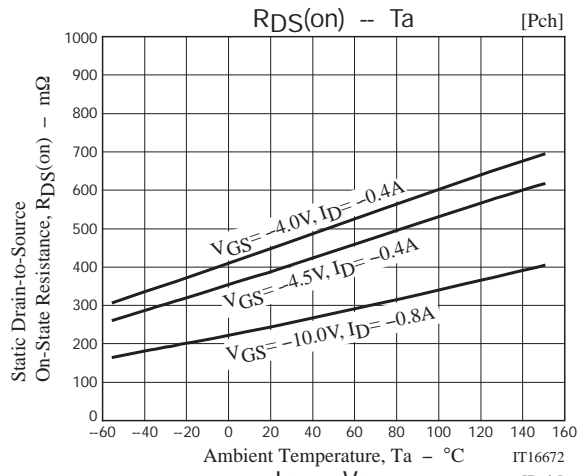
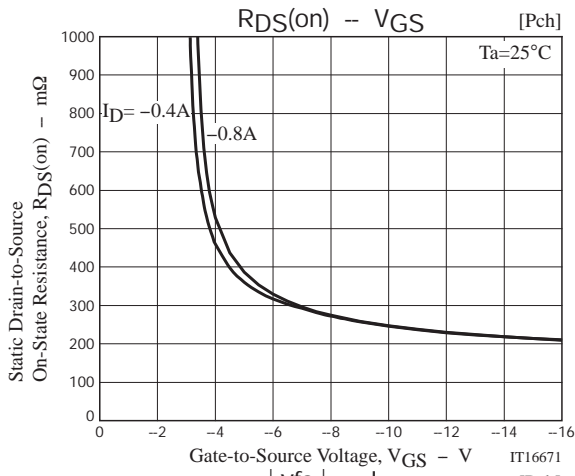


Ordering Information

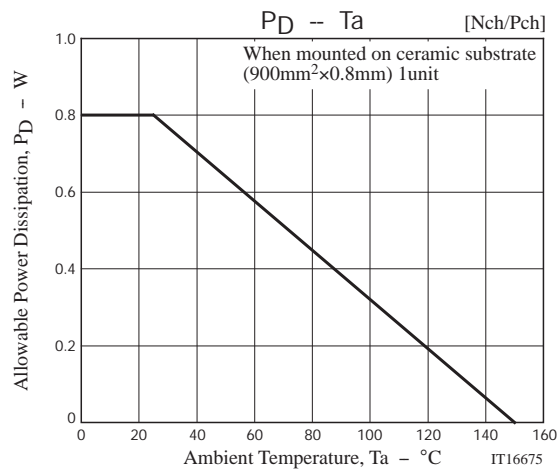
Device	Package	Shipping	memo
MCH6663-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free







MCH6663



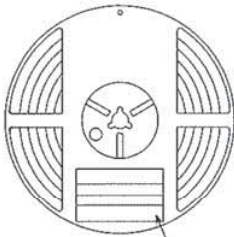
Embossed Taping Specification

MCH6663-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



Reel label

Type No.
LOT No.
Quantity
Origin

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.



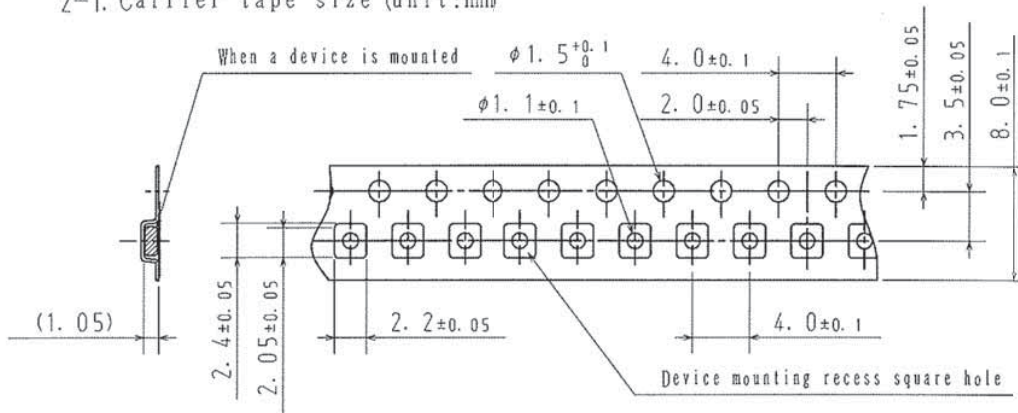
NOTE (1)

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

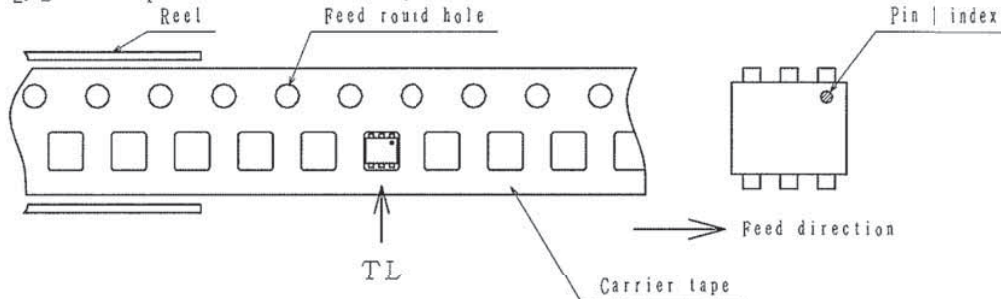
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



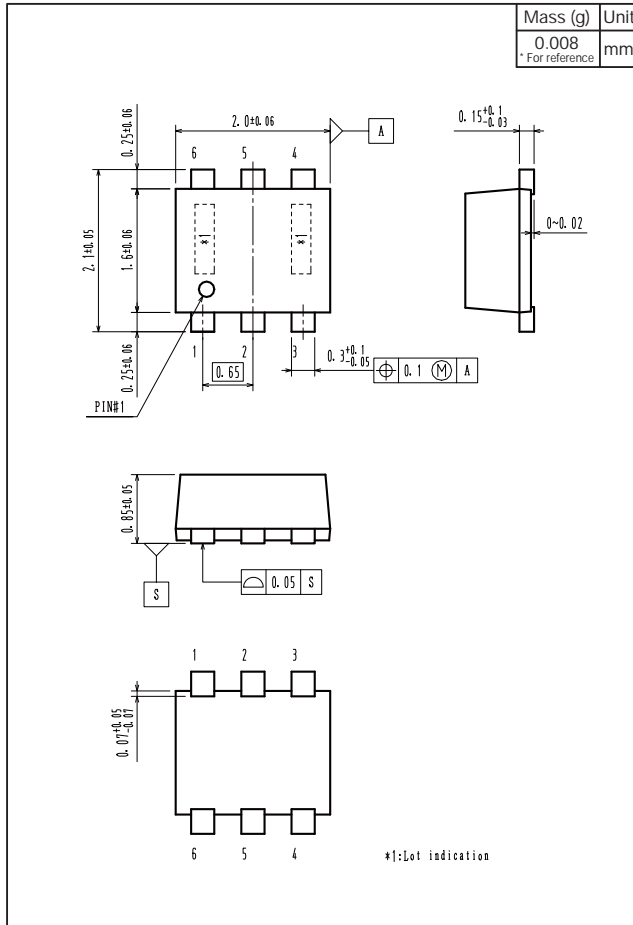
2-2. Device placement direction



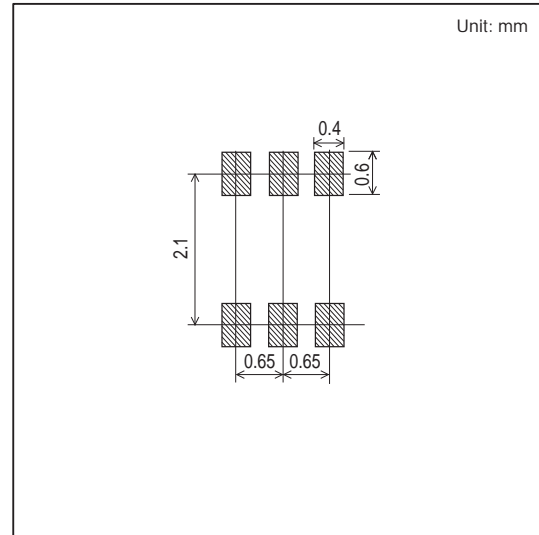
Those with pin | index on the feed hole side.....TL

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Outline Drawing MCH6663-TL-H



Land Pattern Example



Note on usage : Since the MCH6663 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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