



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH6421 — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- 1.8V drive
- Ultrahigh-speed switching
- Protection diode in

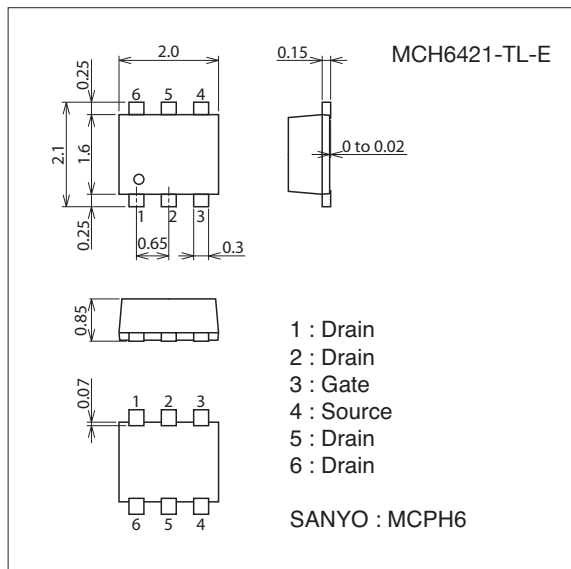
### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±12	V
Drain Current (DC)	I <sub>D</sub>		5.5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	22	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (1200mm <sup>2</sup> ×0.8mm)	1.5	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

### Package Dimensions

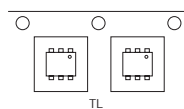
unit : mm (typ)  
7022A-009



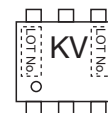
### Product & Package Information

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

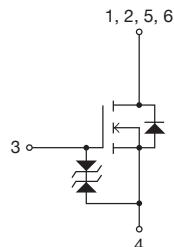
### Packing Type : TL



### Marking



### Electrical Connection

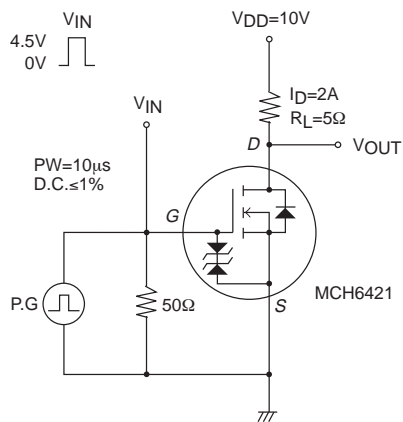


# MCH6421

## Electrical Characteristics at Ta=25°C

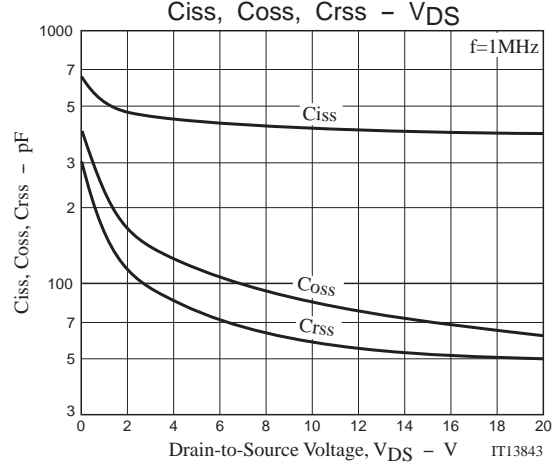
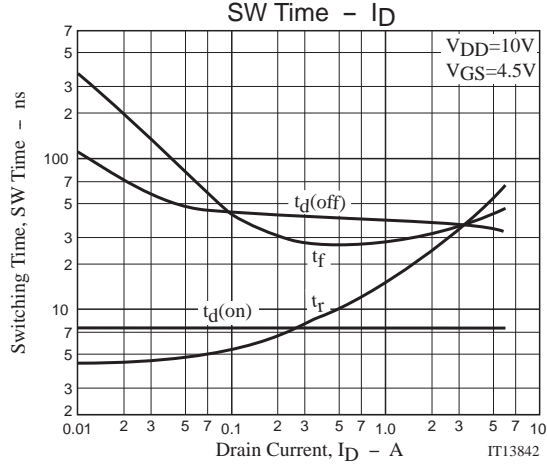
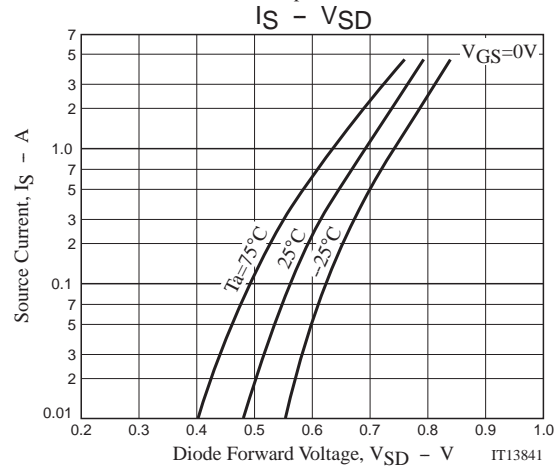
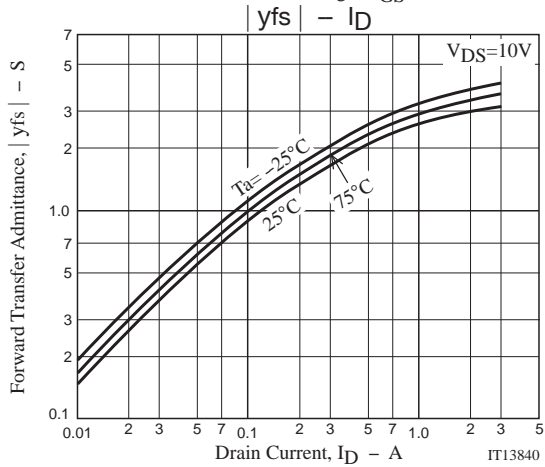
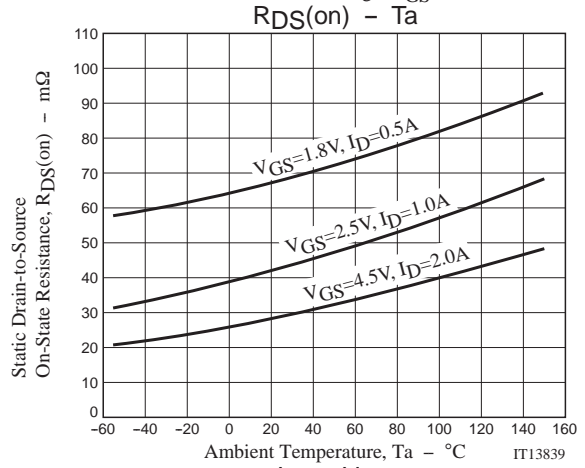
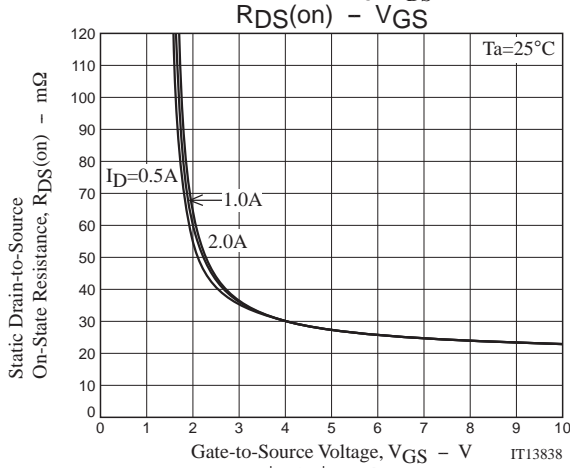
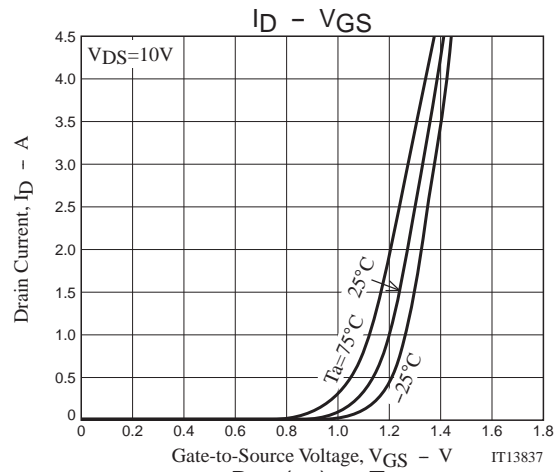
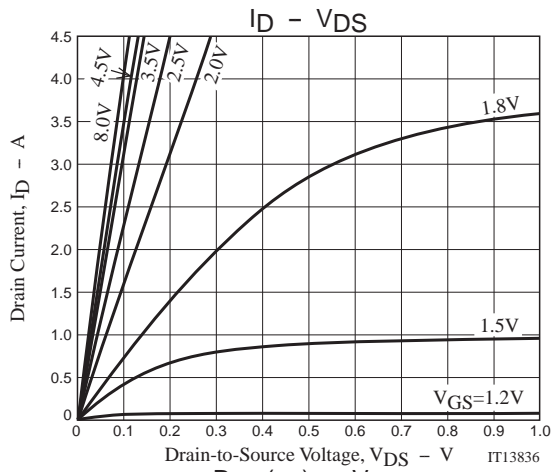
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=2A$	2.0	3.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=2A, V_{GS}=4.5V$		29	38	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=2.5V$		43	61	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.5A, V_{GS}=1.8V$		69	99	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		410		pF
Output Capacitance	$C_{oss}$			84		pF
Reverse Transfer Capacitance	$C_{rss}$			59		pF
Turn-ON Delay Time	$t_{d(on)}$		See specified Test Circuit.		7.5	
Rise Time	$t_r$			26		ns
Turn-OFF Delay Time	$t_{d(off)}$			38		ns
Fall Time	$t_f$			32		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=5.5A$			5.1	
Gate-to-Source Charge	$Q_{gs}$			0.7		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			1.7		nC
Diode Forward Voltage	$V_{SD}$	$I_S=5.5A, V_{GS}=0V$		0.8	1.2	V

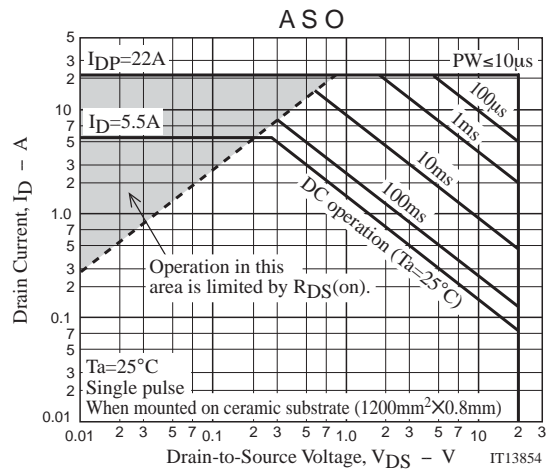
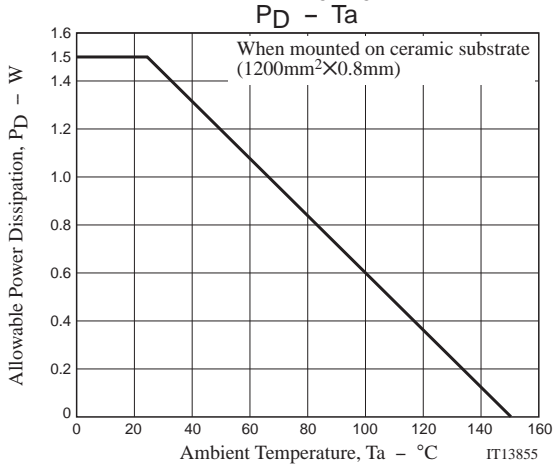
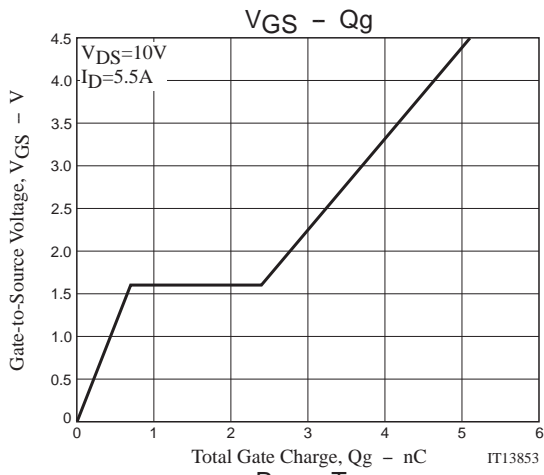
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
MCH6421-TL-E	MCPH6	3,000pcs./reel	Pb Free

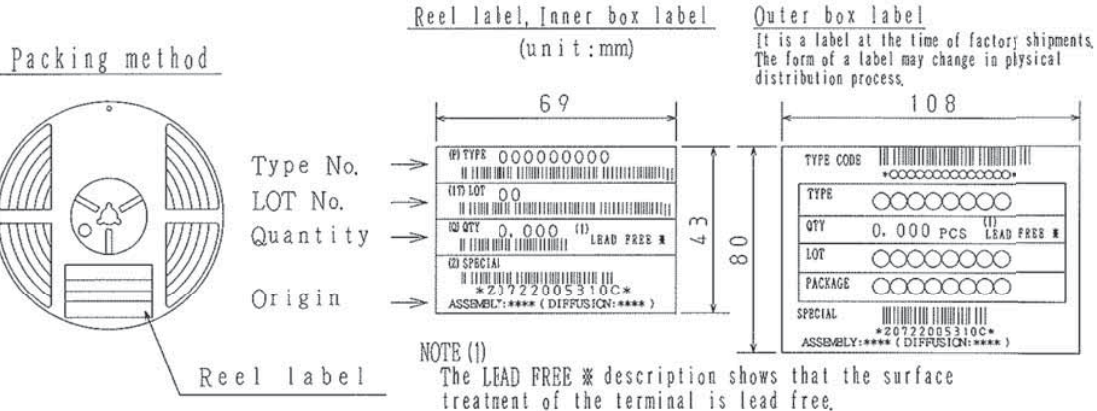




Taping Specification  
MCH6421-TL-E

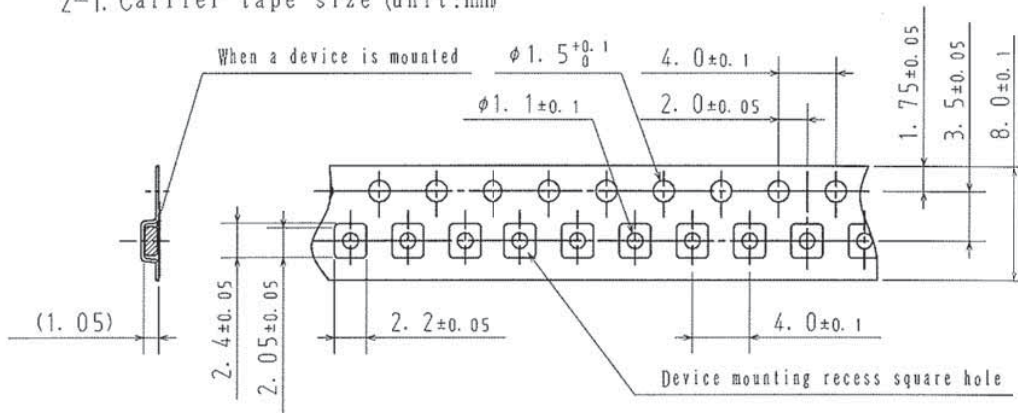
1. Packing Format

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

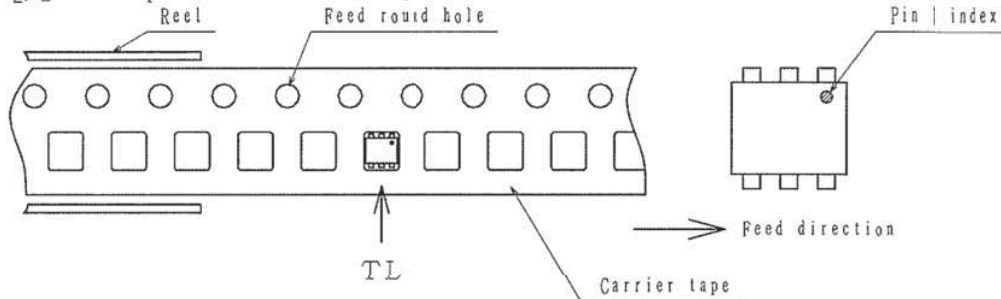


2. Taping configuration

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



2-2. Device placement direction

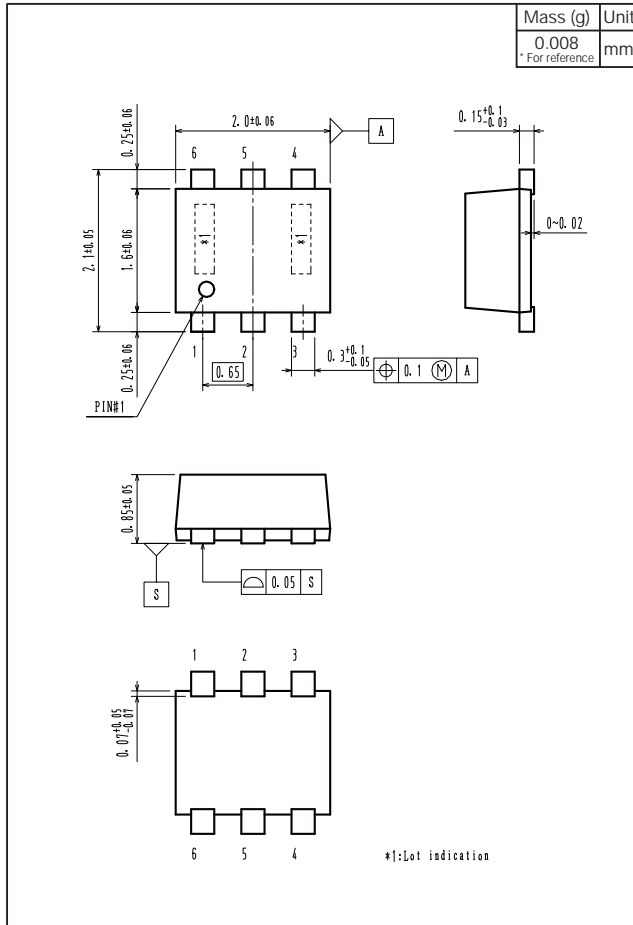


Those with pin | index on the feed hole side.....TL

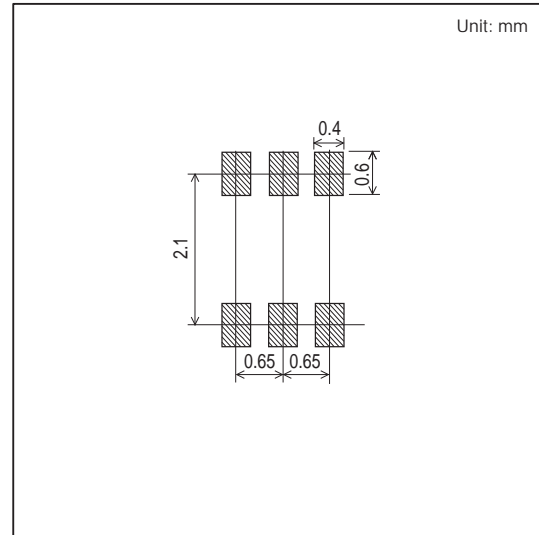
# MCH6421

## Outline Drawing

MCH6421-TL-E



## Land Pattern Example



Note on usage : Since the MCH6421 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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