



# CPH3457 — General-Purpose Switching Device Applications

N-Channel Silicon MOSFET

## Features

- ON-resistance  $R_{DS(on)} = 73\text{m}\Omega$  (typ.)
- 1.8V drive
- Halogen free compliance
- Protection diode in

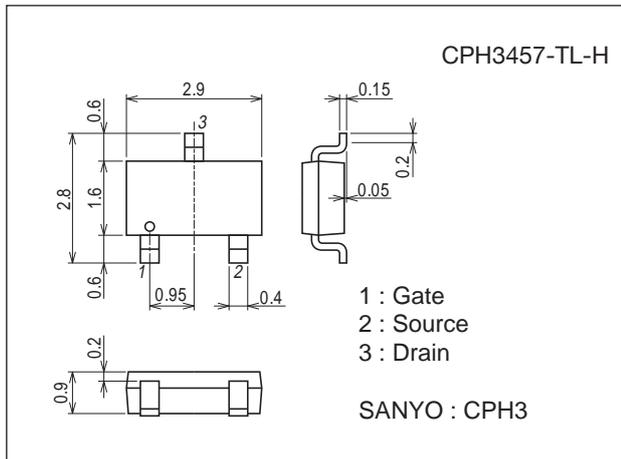
## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		30	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 12$	V
Drain Current (DC)	$I_D$		3	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	12	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate ( $900\text{mm}^2 \times 0.8\text{mm}$ )	1.0	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

## Package Dimensions

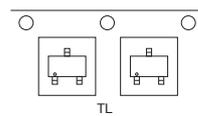
unit : mm (typ)  
7015A-004



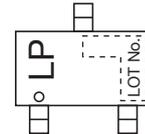
## Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

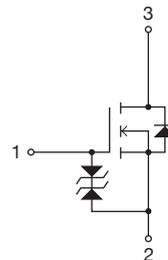
## Packing Type: TL



## Marking



## Electrical Connection

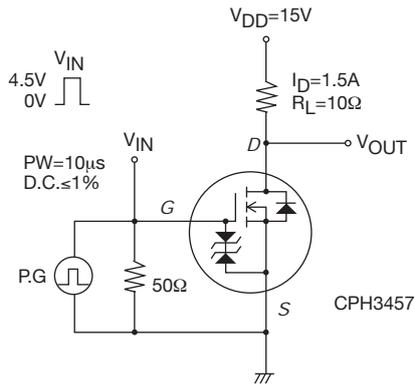


# CPH3457

## Electrical Characteristics at Ta=25°C

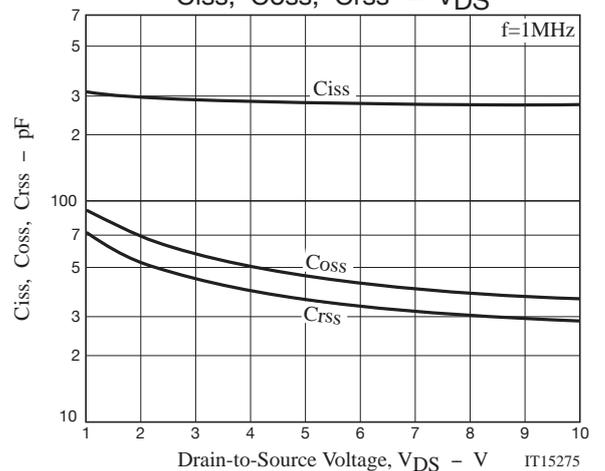
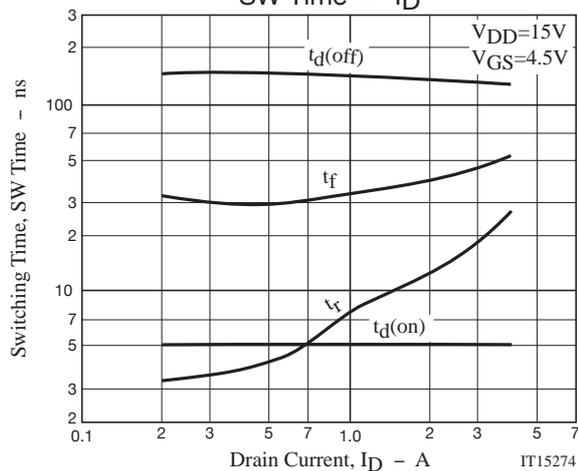
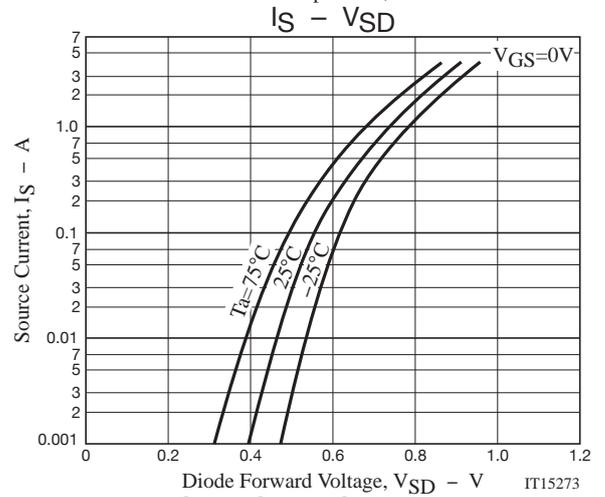
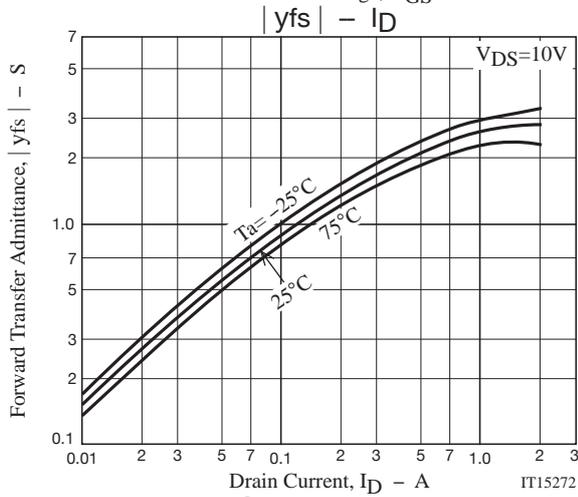
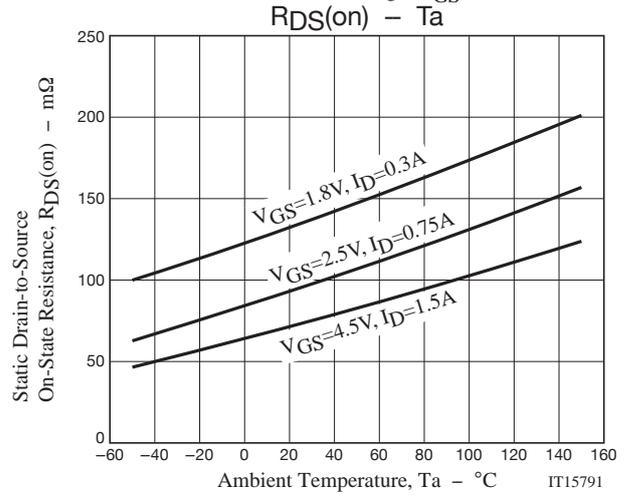
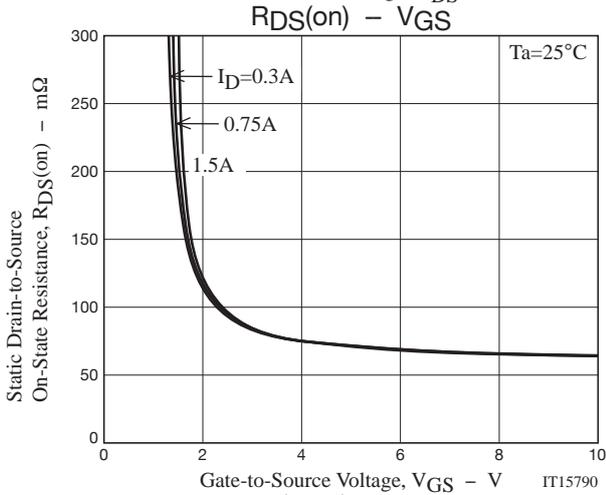
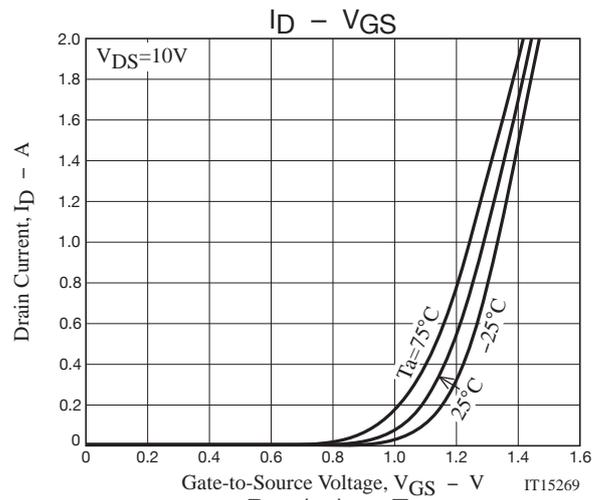
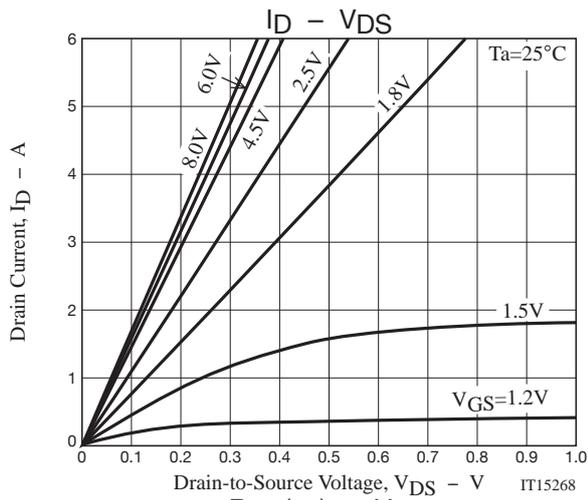
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1.5A		2.7		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =1.5A, V <sub>GS</sub> =4.5V		73	95	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =0.75A, V <sub>GS</sub> =2.5V		95	133	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =0.3A, V <sub>GS</sub> =1.8V		135	203	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		265		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		35		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		28		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		5.1		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		137		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		36		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		3.5		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		0.57		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		0.93		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =0V		0.87	1.2	V

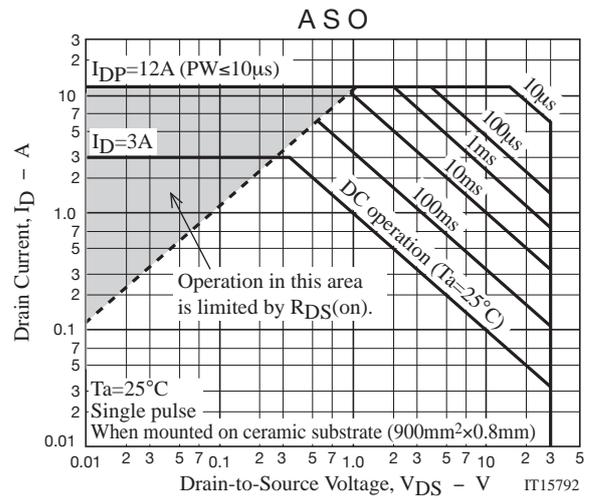
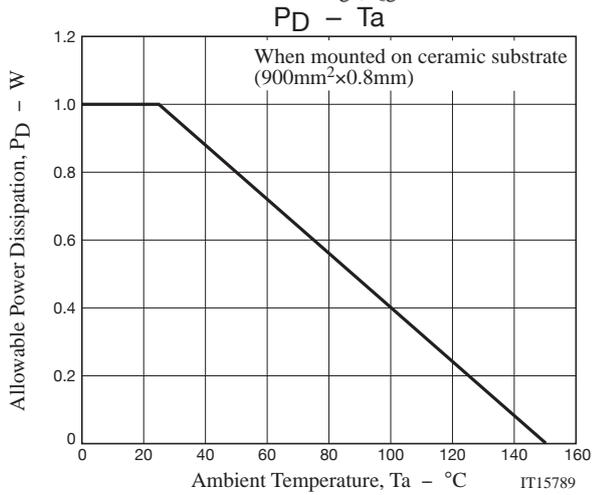
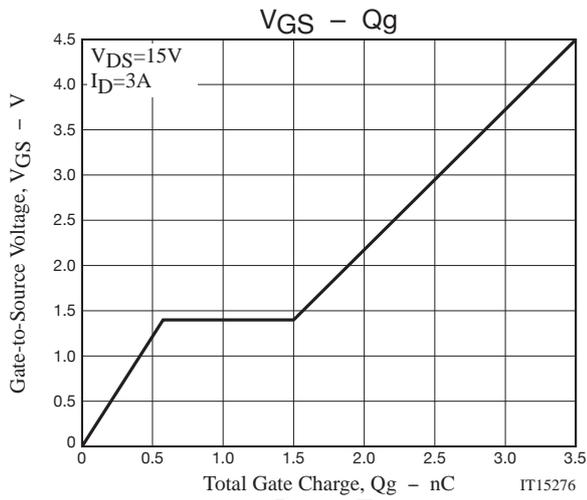
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
CPH3457-TL-H	CPH3	3,000pcs./reel	Pb Free and Halogen Free





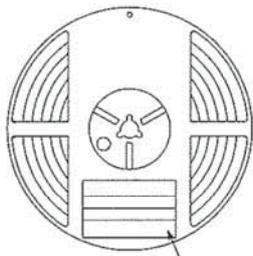
Embossed Taping Specification

CPH3457-TL-H

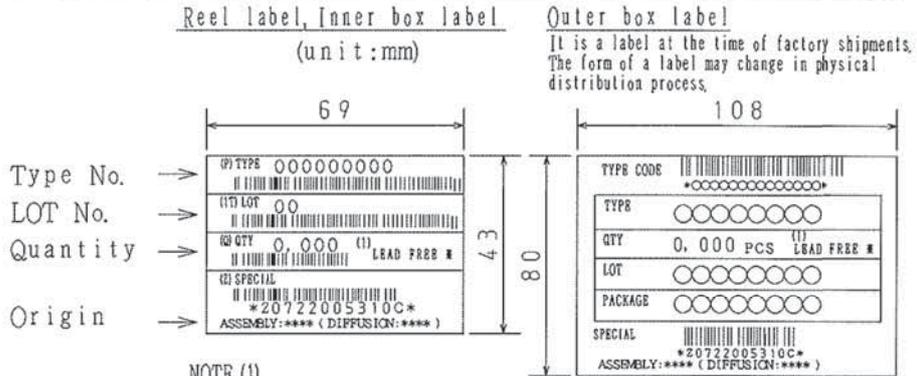
1. Packing Format

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)
CPH3	CPH3	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



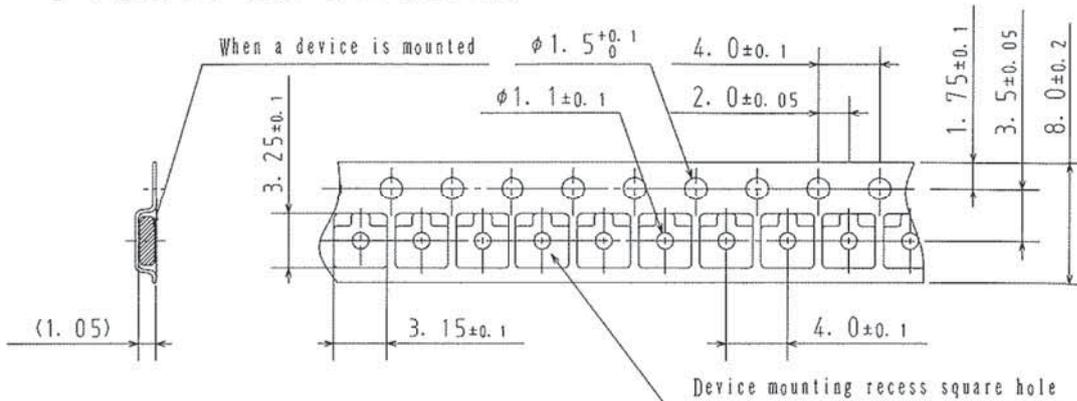
NOTE (1)

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

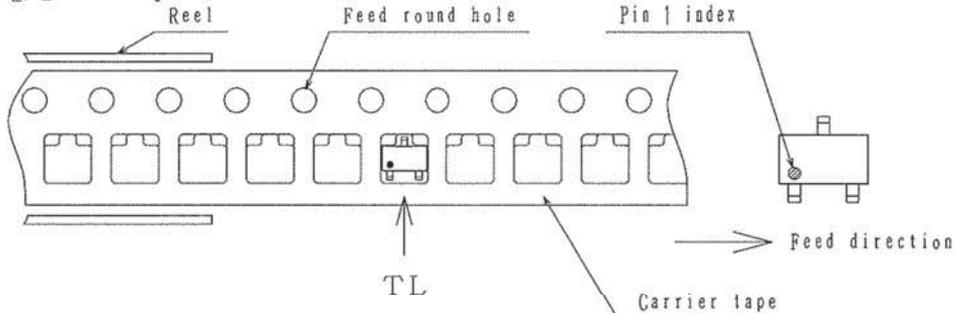
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



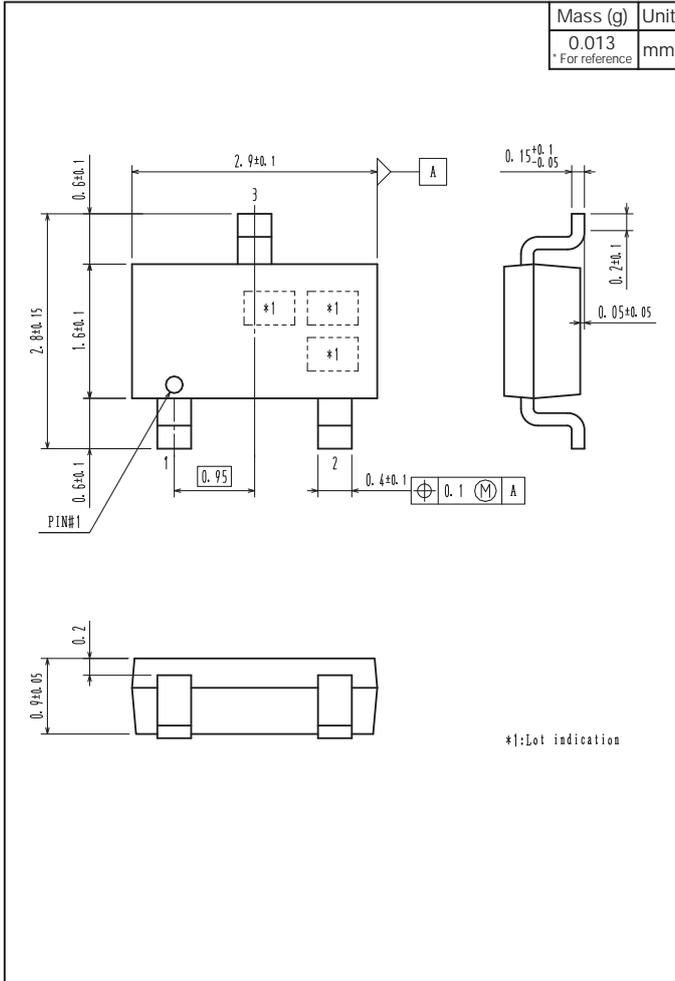
2-2. Device placement direction



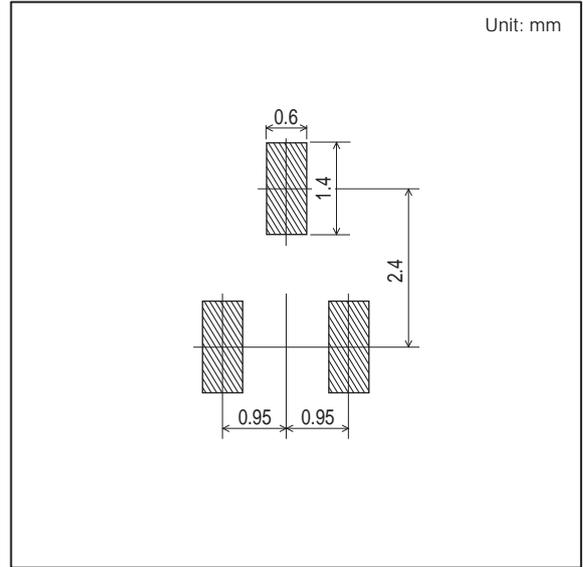
Those with one electrode terminal on the feed hole side.....TL

# CPH3457

## Outline Drawing CPH3457-TL-H



## Land Pattern Example



Note on usage : Since the CPH3457 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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