



# SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

# CPH3457 — General-Purpose Switching Device Applications

## Features

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

## Specifications

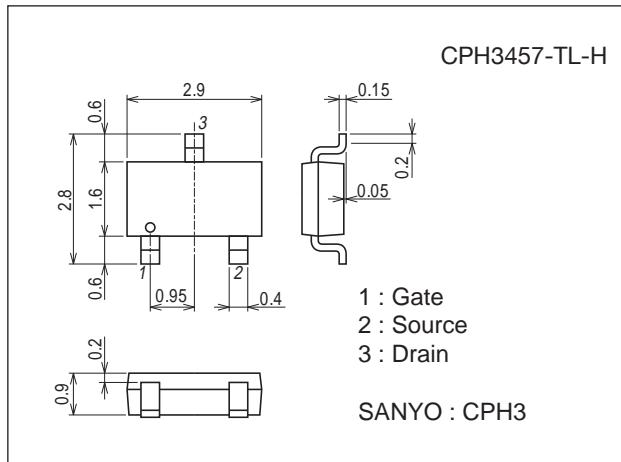
### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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)	$I_{DP}$	$P_W \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	12	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> × 0.8mm)	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)

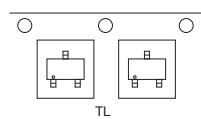
7015A-004



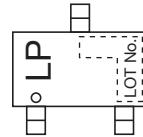
## Product & Package Information

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

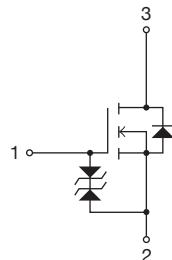
## Packing Type: TL



## Marking



## Electrical Connection



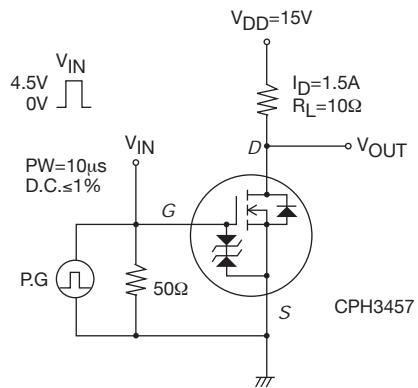
SANYO Semiconductor Co., Ltd.

<http://semicon.sanyo.com/en/network>

Electrical Characteristics at  $T_a=25^\circ\text{C}$ 

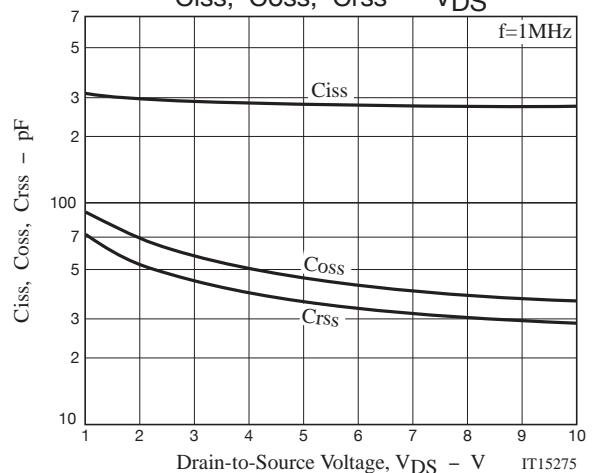
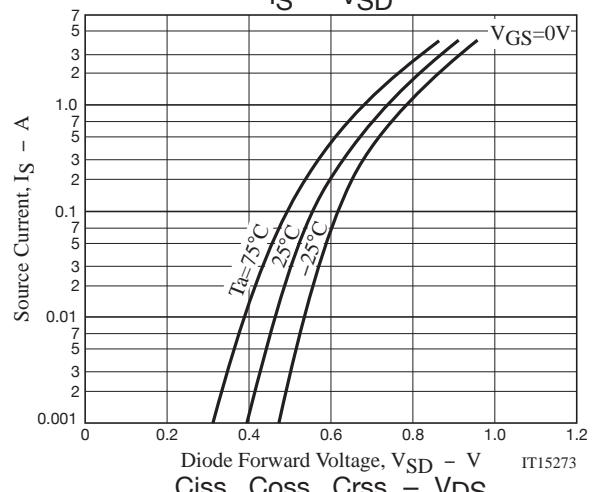
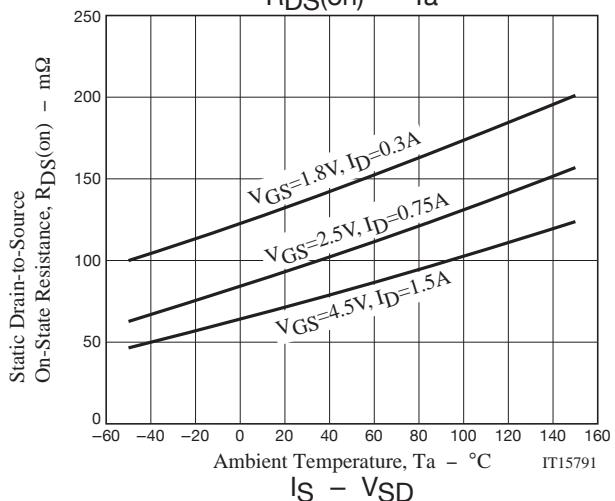
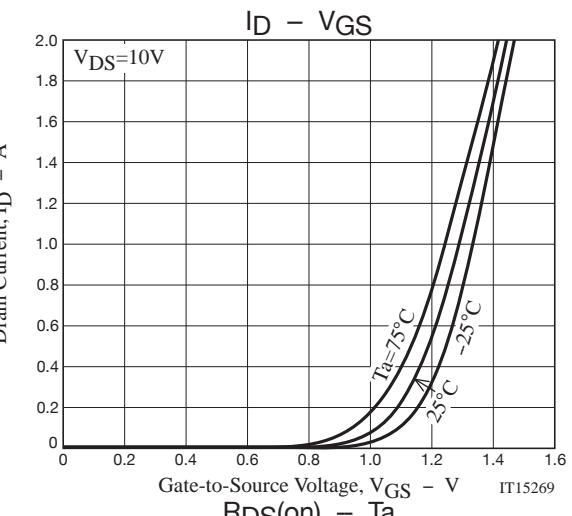
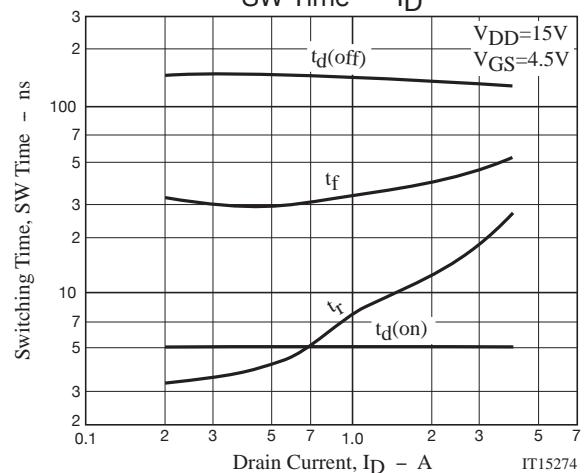
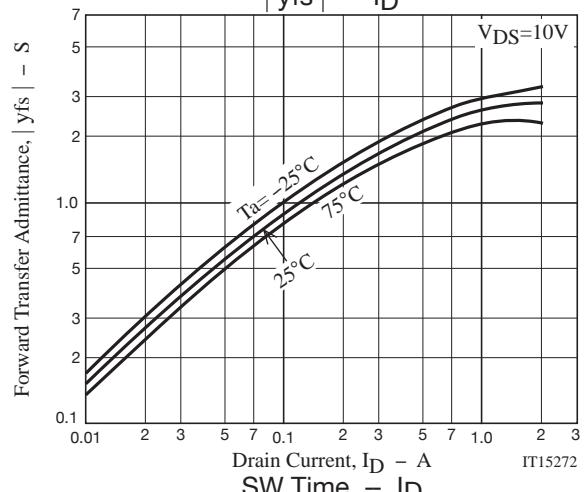
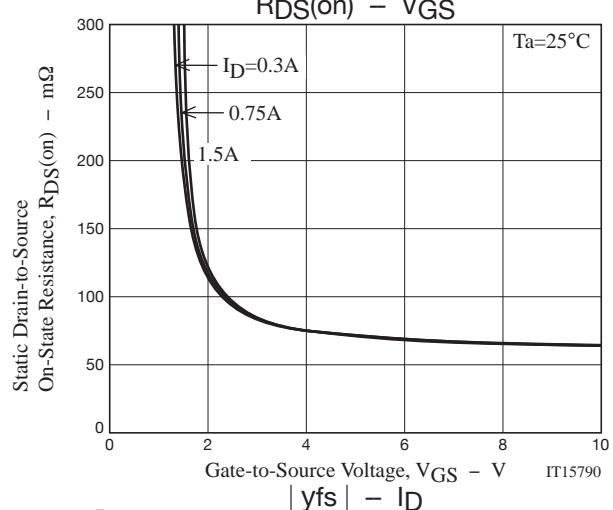
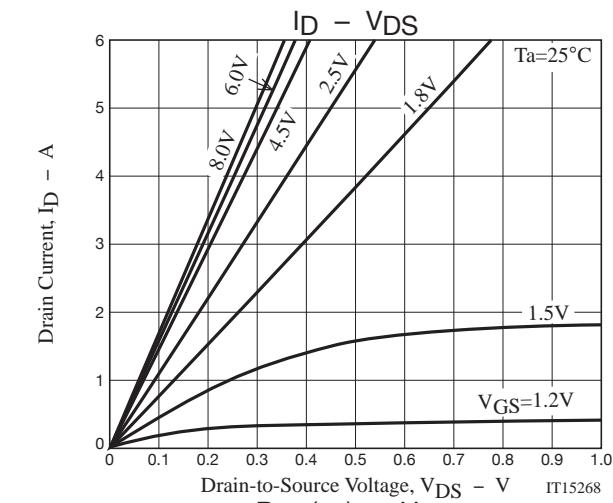
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	30			V
Zero-Gate Voltage Drain Current	$I_{\text{DSS}}$	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{\text{GSS}}$	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{\text{fs}} $	$V_{DS}=10\text{V}, I_D=1.5\text{A}$		2.7		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})1}$	$I_D=1.5\text{A}, V_{GS}=4.5\text{V}$		73	95	$\text{m}\Omega$
	$R_{DS(\text{on})2}$	$I_D=0.75\text{A}, V_{GS}=2.5\text{V}$		95	133	$\text{m}\Omega$
	$R_{DS(\text{on})3}$	$I_D=0.3\text{A}, V_{GS}=1.8\text{V}$		135	203	$\text{m}\Omega$
Input Capacitance	$C_{\text{iss}}$	$V_{DS}=10\text{V}, f=1\text{MHz}$		265		$\text{pF}$
Output Capacitance	$C_{\text{oss}}$	$V_{DS}=10\text{V}, f=1\text{MHz}$		35		$\text{pF}$
Reverse Transfer Capacitance	$C_{\text{rss}}$	$V_{DS}=10\text{V}, f=1\text{MHz}$		28		$\text{pF}$
Turn-ON Delay Time	$t_{\text{d(on)}}$	See specified Test Circuit.		5.1		ns
Rise Time	$t_r$	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	$t_{\text{d(off)}}$	See specified Test Circuit.		137		ns
Fall Time	$t_f$	See specified Test Circuit.		36		ns
Total Gate Charge	$Q_g$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=3\text{A}$		3.5		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=3\text{A}$		0.57		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=3\text{A}$		0.93		nC
Diode Forward Voltage	$V_{SD}$	$I_S=3\text{A}, V_{GS}=0\text{V}$		0.87	1.2	V

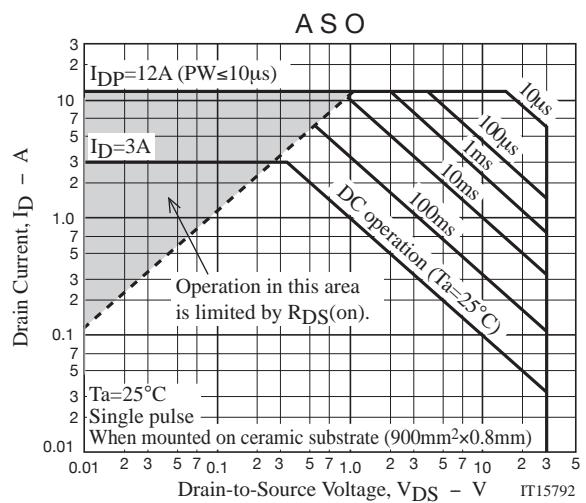
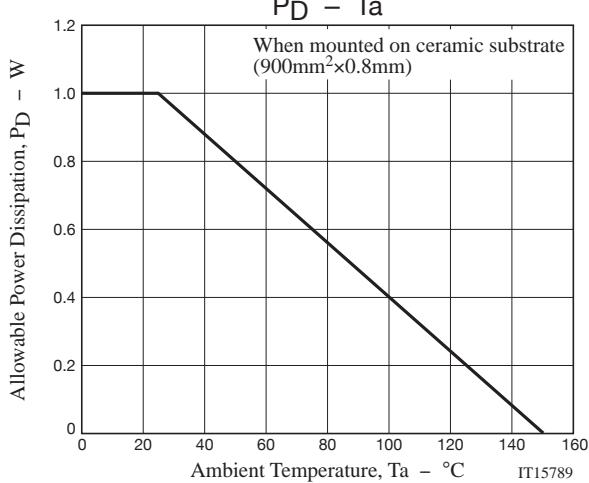
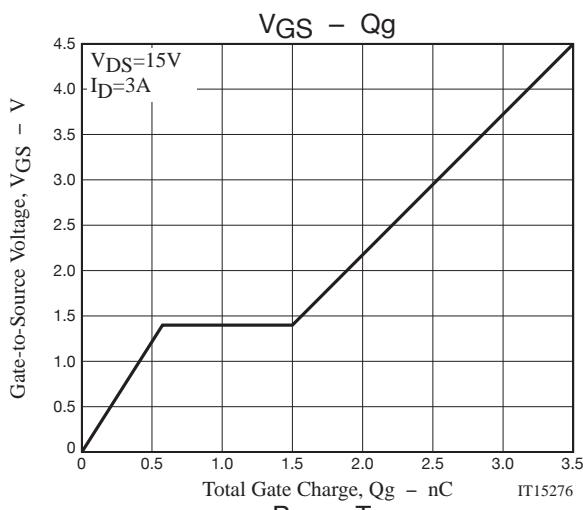
## Switching Time Test Circuit



## Ordering Information

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





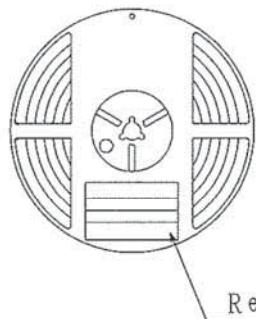
## Embossed Taping Specification

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

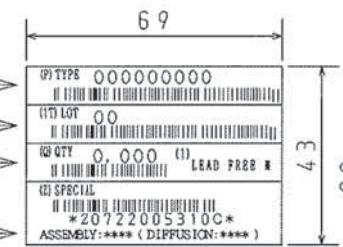
## Packing method



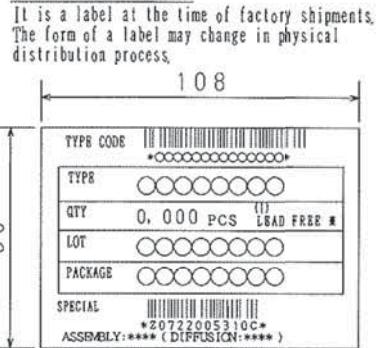
Type No.  
LOT No.  
Quantity  
Origin

## Reel label, Inner box label

(unit:mm)

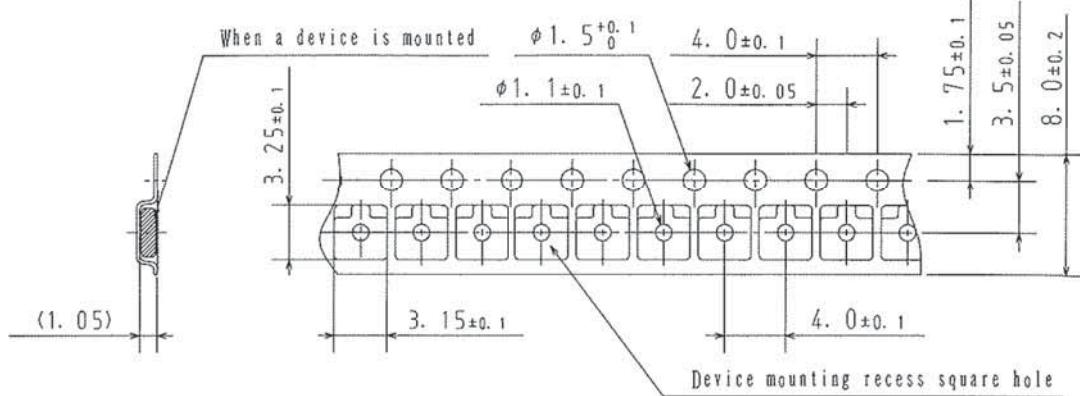


## Outer box label

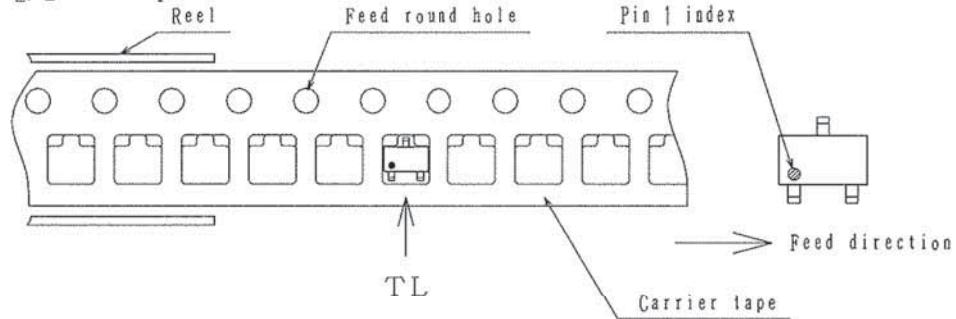


## 2. Taping configuration

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



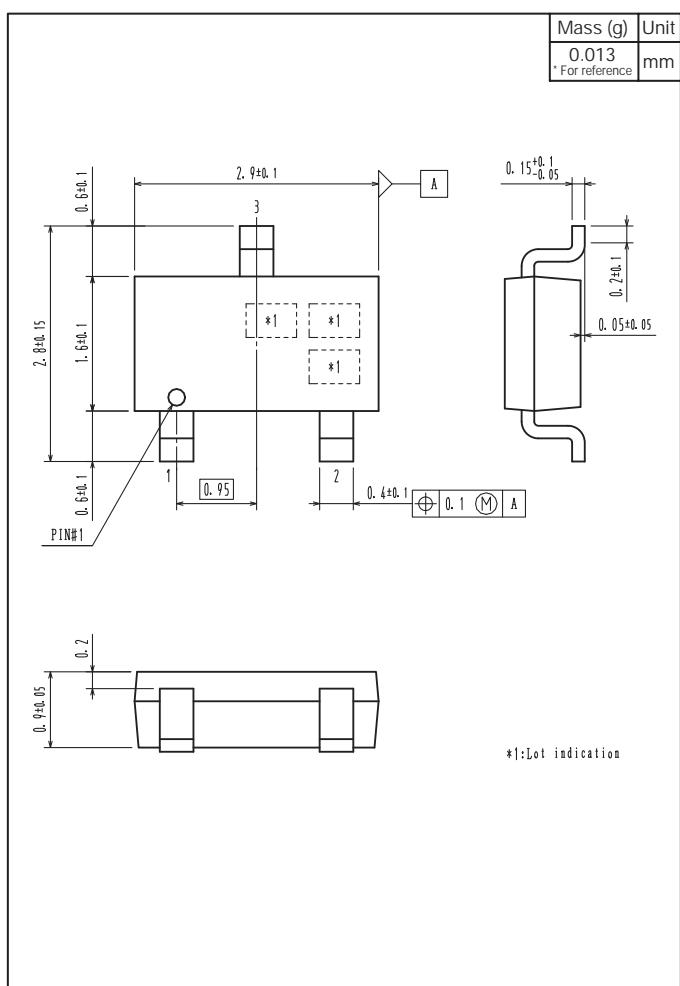
## 2-2. Device placement direction



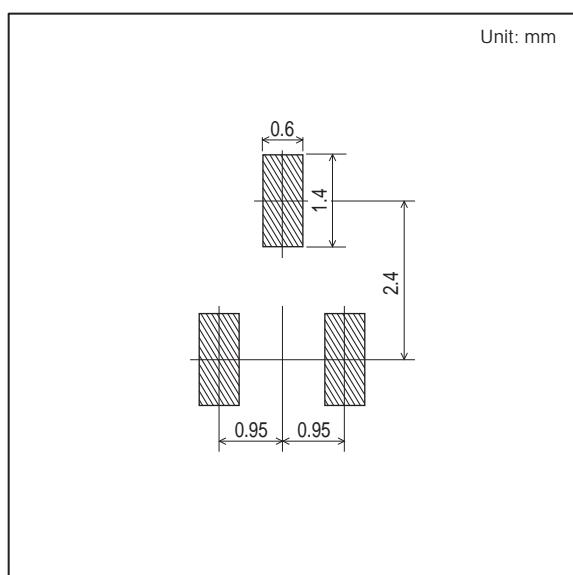
Those with one electrode terminal on the feed hole side.....TL

## 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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