



# **SANYO Semiconductors**

# **DATA SHEET**

An ON Semiconductor Company

## P-Channel Silicon MOSFET

# CPH3356 — General-Purpose Switching Device Applications

## Features

- 1.8V drive
- Halogen free compliance
- Protection diode in

## Specifications

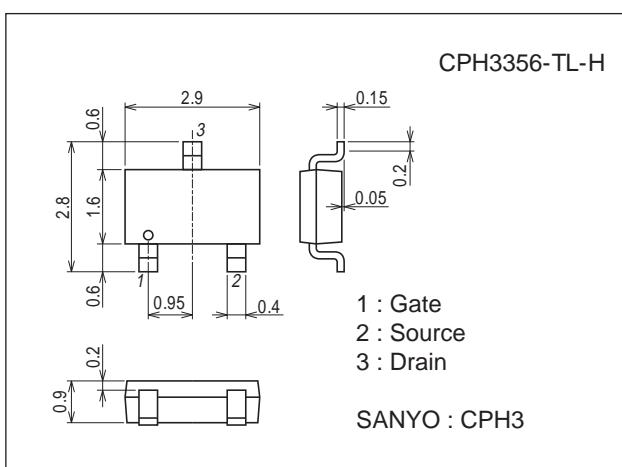
### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$					
Parameter	Symbol	Conditions	Ratings	Unit	
Drain-to-Source Voltage	$V_{DSS}$		-20	V	
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V	
Drain Current (DC)	$I_D$		-2.5	A	
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-10	A	
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm $^2$ $\times$ 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)

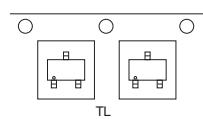
7015A-004



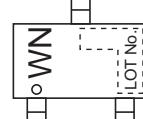
## Product & Package Information

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

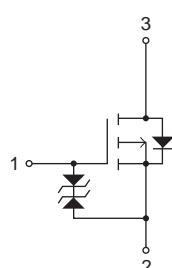
### Packing Type: TL



## Marking



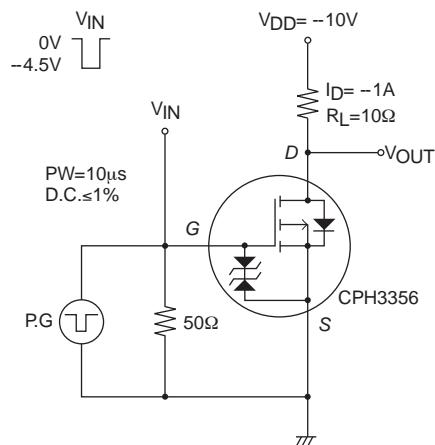
## Electrical Connection



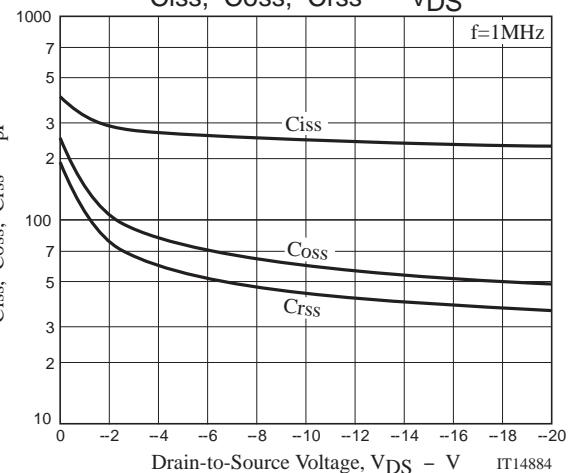
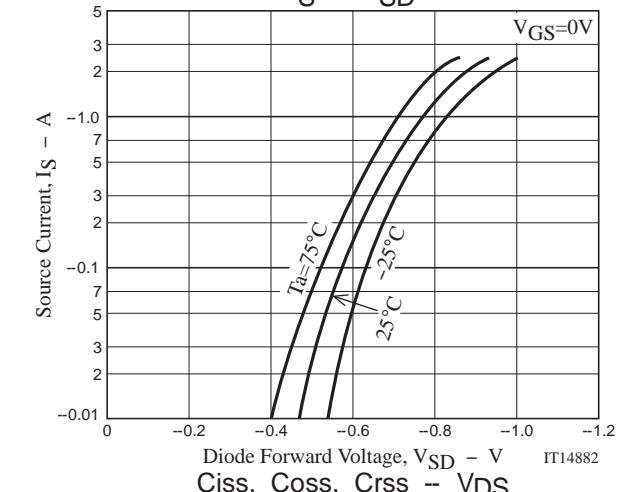
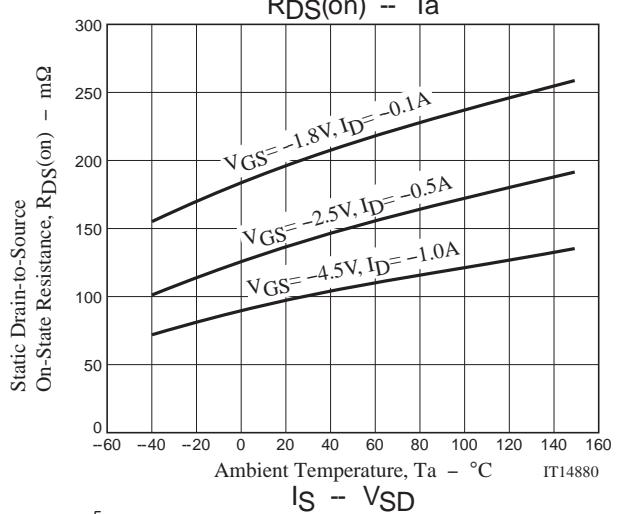
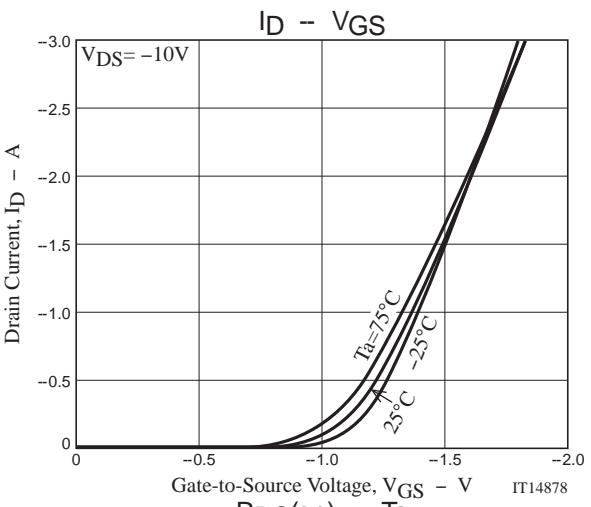
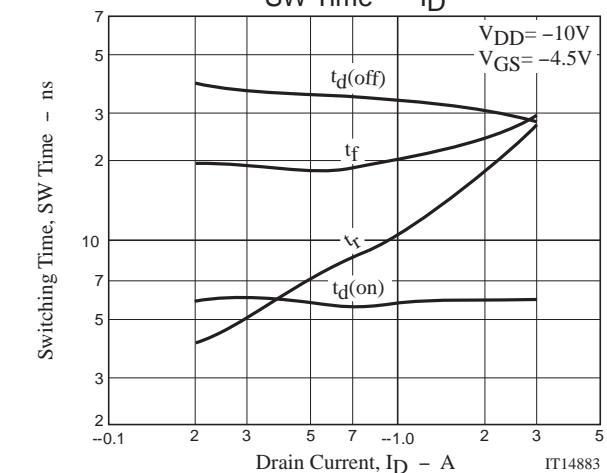
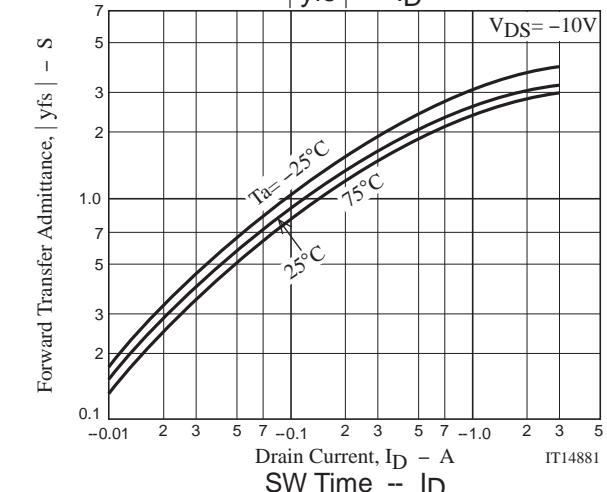
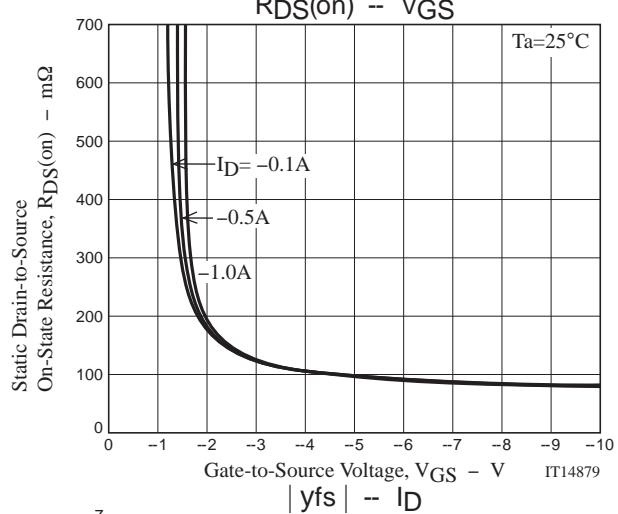
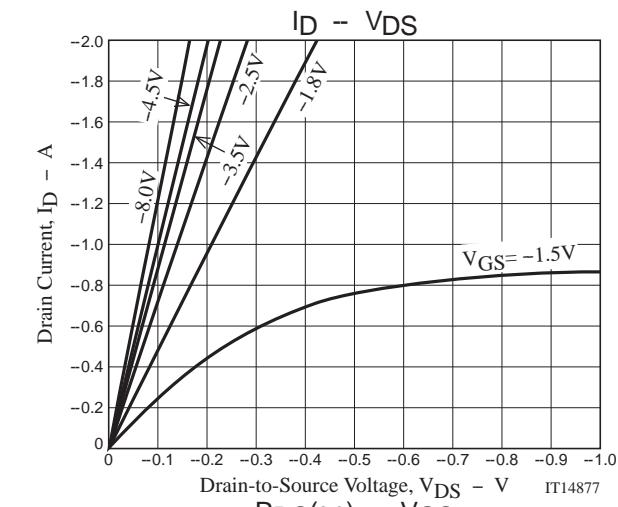
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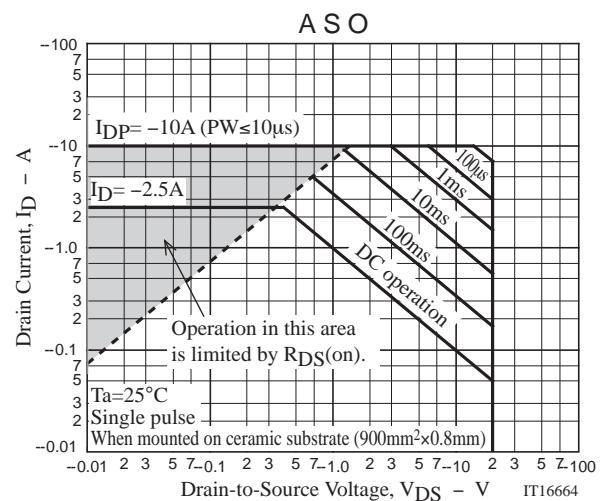
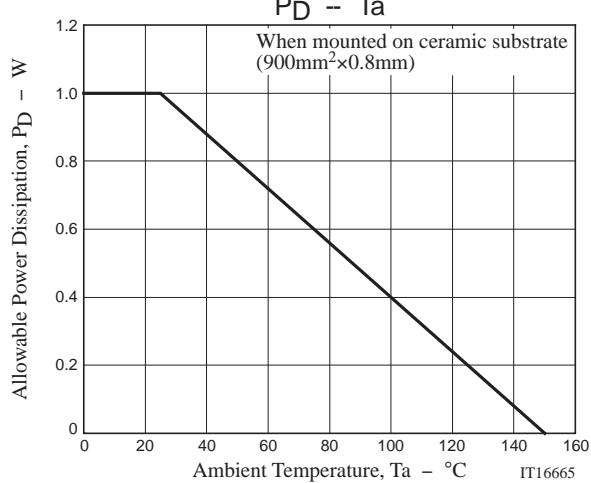
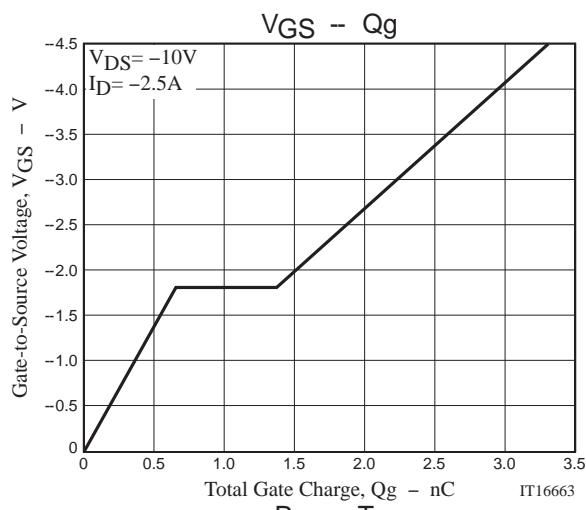
**Electrical Characteristics** at  $T_a=25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$I_D=-1\text{mA}, V_{GS}=0\text{V}$	-20			V
Zero-Gate Voltage Drain Current	$I_{\text{DSS}}$	$V_{DS}=-20\text{V}, V_{GS}=0\text{V}$			-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		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}, I_D=-1\text{A}$		2.7		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})1}$	$I_D=-1\text{A}, V_{GS}=-4.5\text{V}$		105	137	$\text{m}\Omega$
	$R_{DS(\text{on})2}$	$I_D=-0.5\text{A}, V_{GS}=-2.5\text{V}$		145	203	$\text{m}\Omega$
	$R_{DS(\text{on})3}$	$I_D=-0.1\text{A}, V_{GS}=-1.8\text{V}$		215	323	$\text{m}\Omega$
Input Capacitance	$C_{\text{iss}}$	$V_{DS}=-10\text{V}, f=1\text{MHz}$		250		$\text{pF}$
Output Capacitance	$C_{\text{oss}}$			60		$\text{pF}$
Reverse Transfer Capacitance	$C_{\text{rss}}$			45		$\text{pF}$
Turn-ON Delay Time	$t_{\text{d}(\text{on})}$	See specified Test Circuit.		5.7		ns
Rise Time	$t_r$			11		ns
Turn-OFF Delay Time	$t_{\text{d}(\text{off})}$			34		ns
Fall Time	$t_f$			20		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10\text{V}, V_{GS}=-4.5\text{V}, I_D=-2.5\text{A}$		3.3		$\text{nC}$
Gate-to-Source Charge	$Q_{gs}$			0.65		$\text{nC}$
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.72		$\text{nC}$
Diode Forward Voltage	$V_{SD}$	$I_S=-2.5\text{A}, V_{GS}=0\text{V}$		-0.87	-1.5	V

**Switching Time Test Circuit****Ordering Information**

Device	Package	Shipping	memo
CPH3356-TL-H	CPH3	3,000pcs./reel	Pb Free and Halogen Free



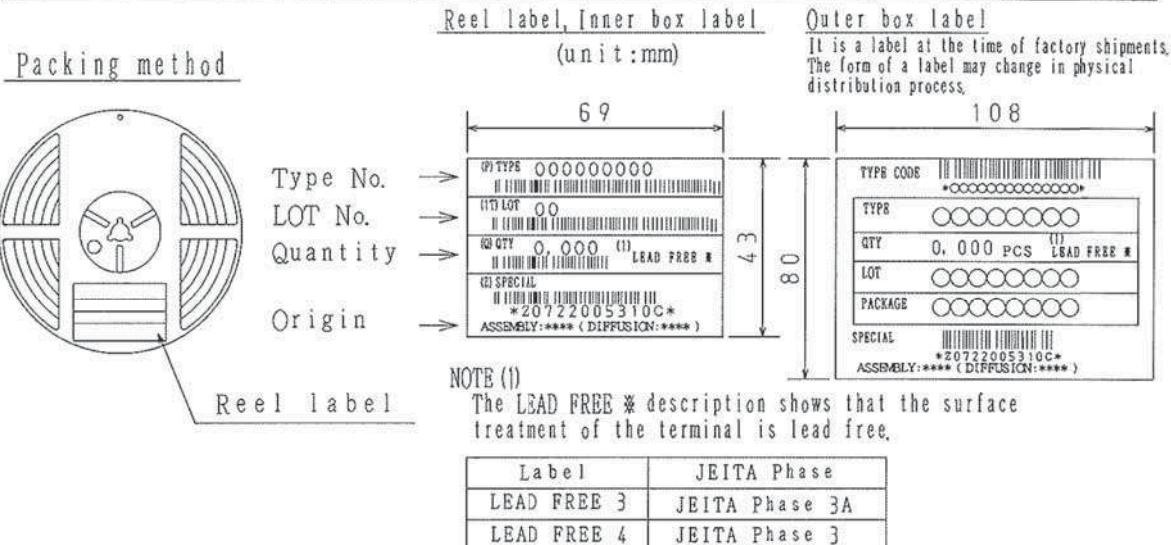


## Embossed Taping Specification

CPH3356-TL-H

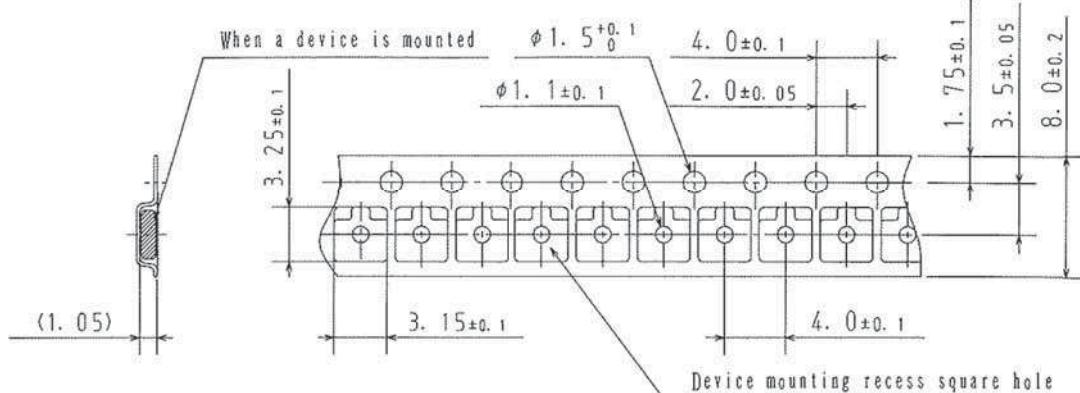
## 1. Packing Format

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

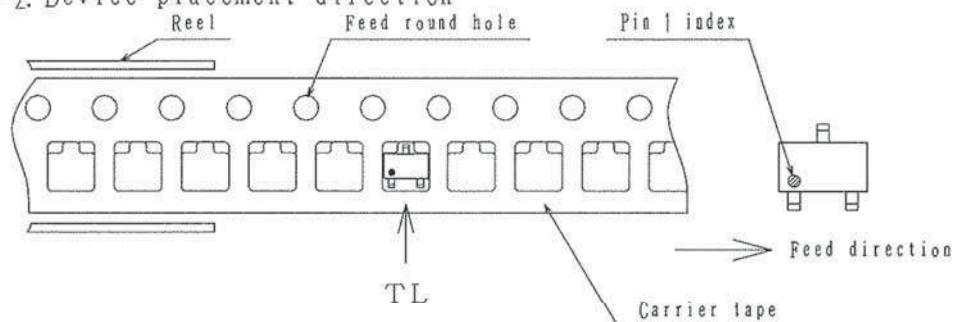


## 2. Taping configuration

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



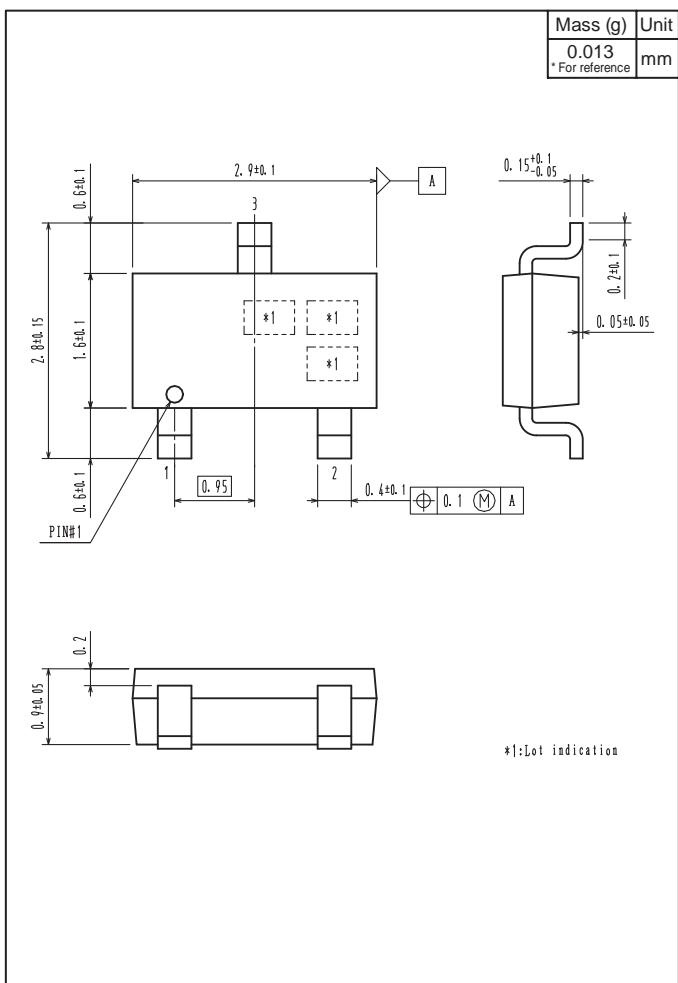
## 2-2. Device placement direction



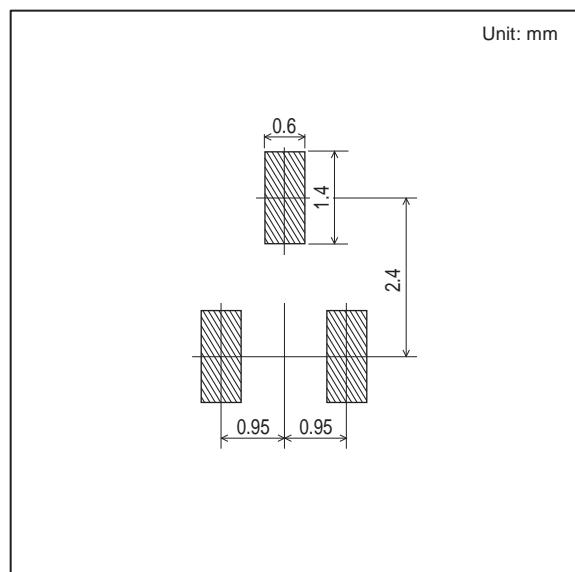
Those with one electrode terminal on the feed hole side.....TL

## Outline Drawing

CPH3356-TL-H



## Land Pattern Example



Note on usage : Since the CPH3356 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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