Ordering number : ENA0114A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

CPH3360 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1=233m\Omega$(typ.)
- 4V drive
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−1.6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−6.4	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm²×0.8mm)	0.9	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

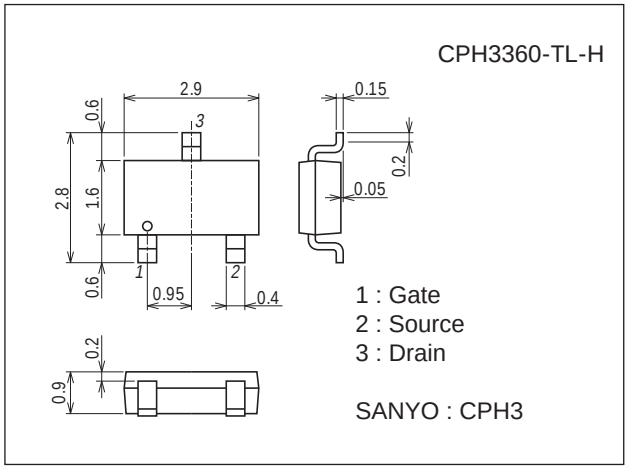
This product is designed to “ESD immunity < 200V*”, so please take care when handling.

* Machine Model

Package Dimensions

unit : mm (typ)

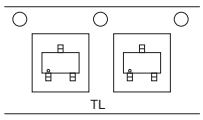
7015A-004



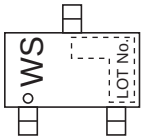
Product & Package Information

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

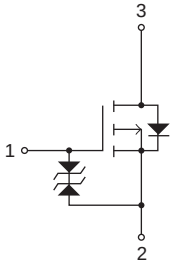
Packing Type: TL



Marking



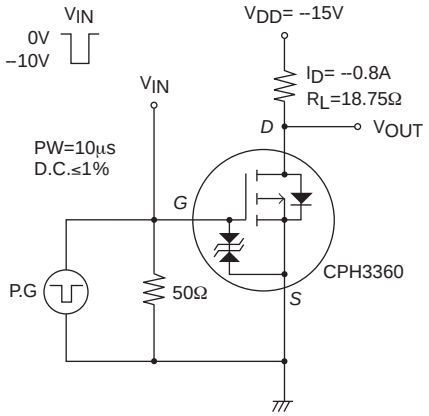
Electrical Connection



Electrical Characteristics at Ta=25°C

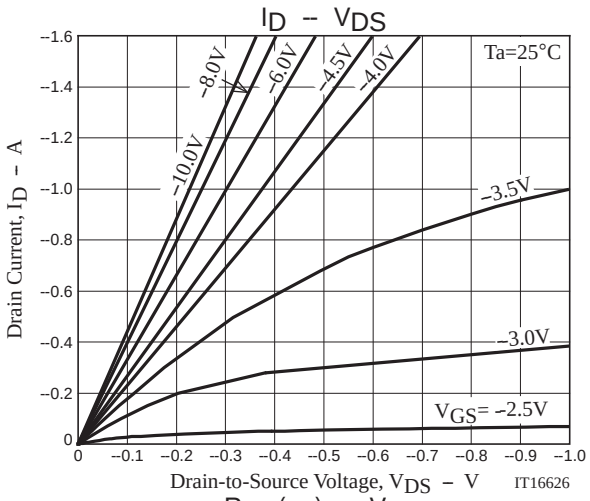
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=−1mA, V_{GS}=0V	−30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−30V, V_{GS}=0V			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−10V, I_D=−1mA	−1.2		−2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=−10V, I_D=−0.8A		1.3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−0.8A, V_{GS}=−10V		233	303	mΩ
	R_{DS}(on)2	I_D=−0.4A, V_{GS}=−4.5V		380	532	mΩ
	R_{DS}(on)3	I_D=−0.4A, V_{GS}=−4V		441	617	mΩ
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		82		pF
Output Capacitance	Coss			22		pF
Reverse Transfer Capacitance	Crss			16		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		4.0		ns
Rise Time	t_r			3.3		ns
Turn-OFF Delay Time	t_{d}(off)			12		ns
Fall Time	t_f			5.4		ns
Total Gate Charge	Qg	V_{DS}=−15V, V_{GS}=−10V, I_D=−1.6A		2.2		nC
Gate-to-Source Charge	Qgs			0.36		nC
Gate-to-Drain “Miller” Charge	Qgd			0.49		nC
Diode Forward Voltage	V_{SD}	I_S=−1.6A, V_{GS}=0V		−0.9	−1.5	V

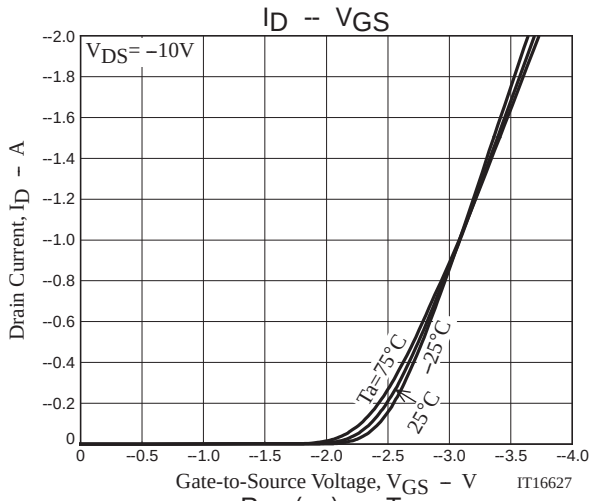
Switching Time Test Circuit

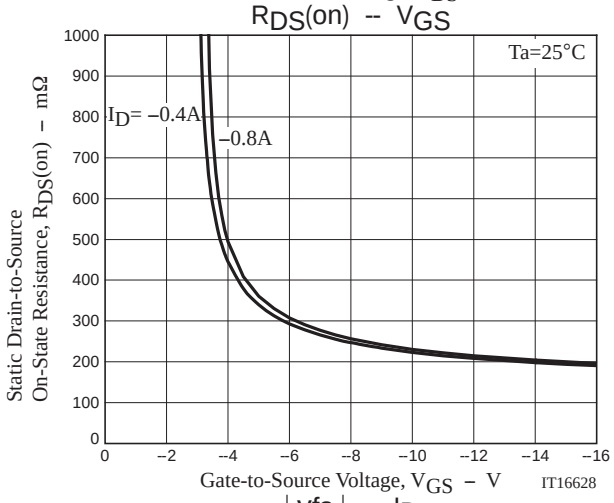


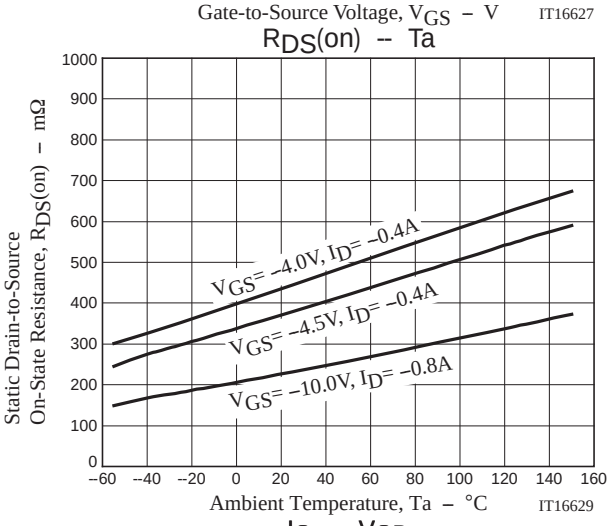
Ordering Information

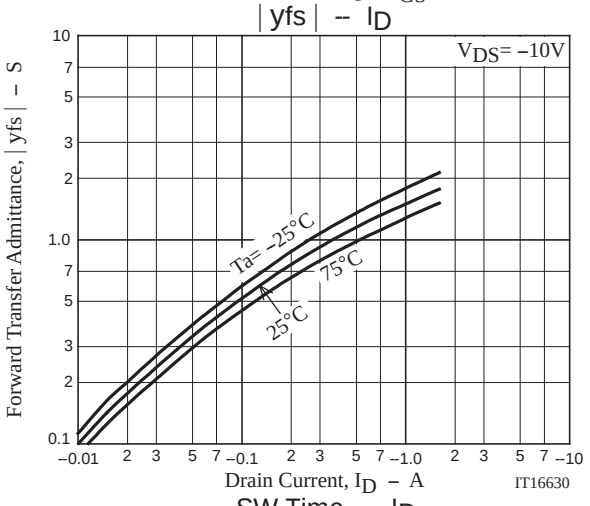
Device	Package	Shipping	memo
CPH3360-TL-H	CPH3	3,000pcs./reel	Pb Free and Halogen Free

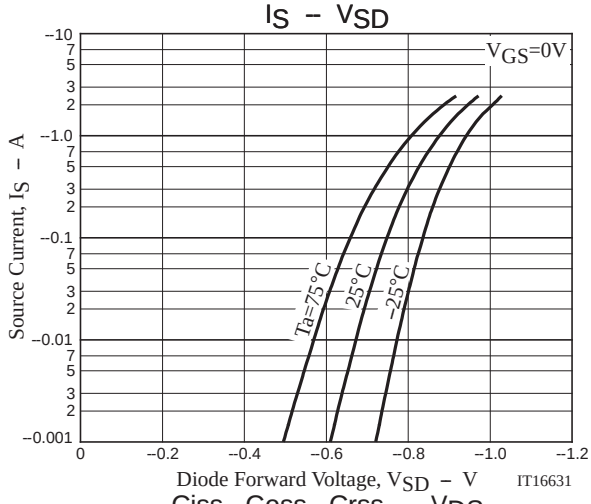

ID -- VDS
Ta=25°C
–8.0V
–6.0V
–4.5V
–4.0V
–10.0V
–3.5V
–3.0V
VGS= –2.5V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16626

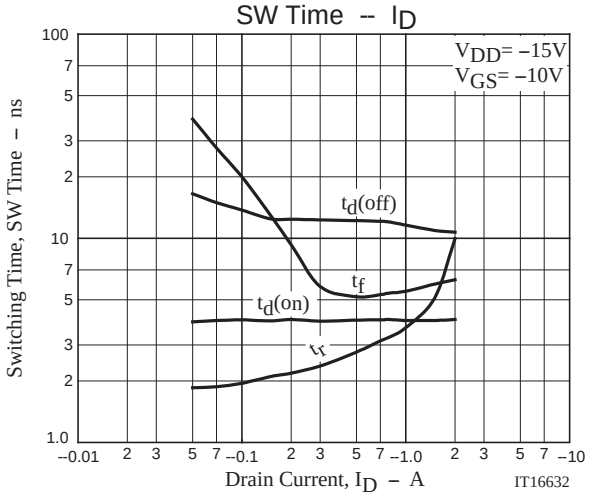

ID -- VGS
VDS= –10V
Ta=75°C
–25°C
25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT16627

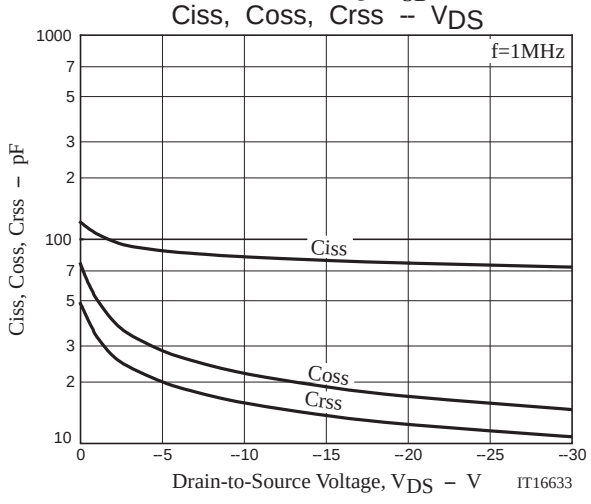

RDS(on) -- VGS
Ta=25°C
ID= –0.4A
–0.8A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT16628

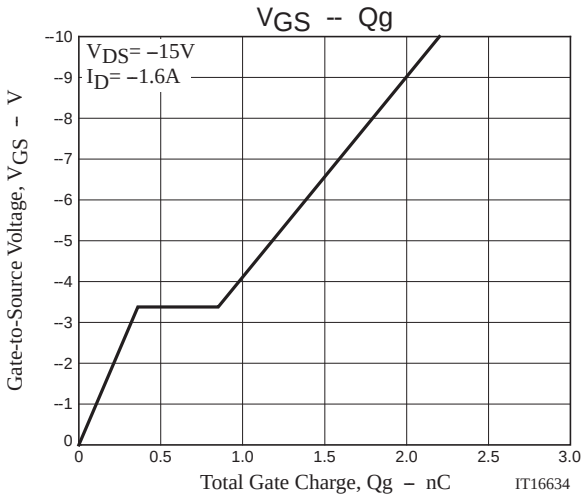

RDS(on) -- Ta
VGS= –4.0V, ID= –0.4A
VGS= –4.5V, ID= –0.4A
VGS= –10.0V, ID= –0.8A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT16629

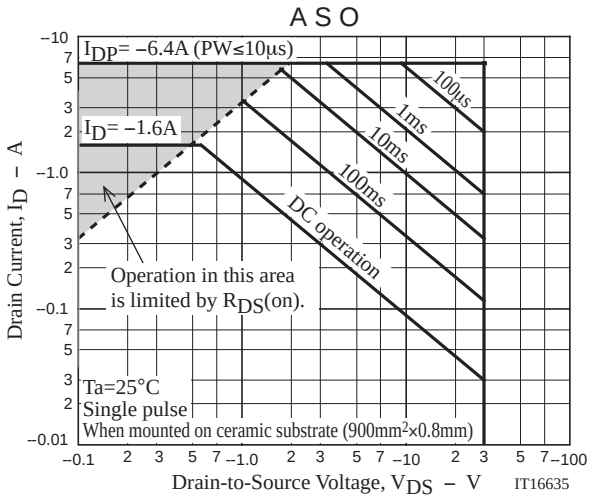

| yfs | -- ID
VDS= –10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT16630

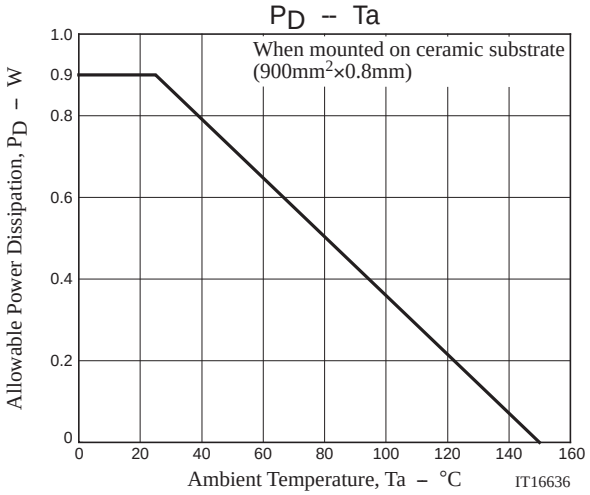

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT16631


SW Time -- ID
VDD= –15V
VGS= –10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT16632


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT16633


VGS -- Qg
VDS= −15V
ID= −1.6A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT16634


A S O
IDP= −6.4A (PW≤10μs)
ID= −1.6A
100μs
1ms
10ms
100ms
DC operation
Operation in this area
is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (900mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16635


PD -- Ta
When mounted on ceramic substrate
(900mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT16636

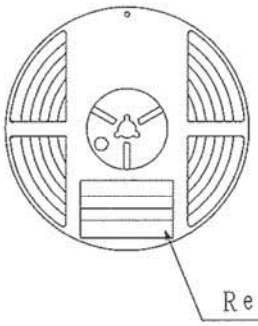
Embossed Taping Specification

CPH3360-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

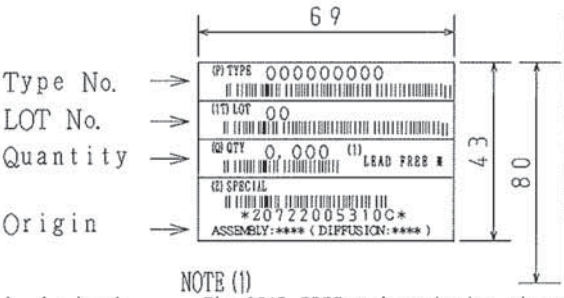
Packing method



Reel label

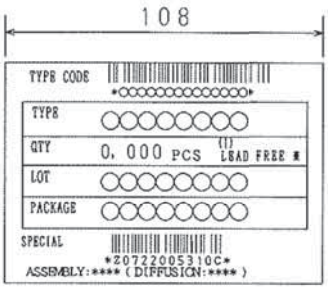
Reel label, Inner box label

(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.

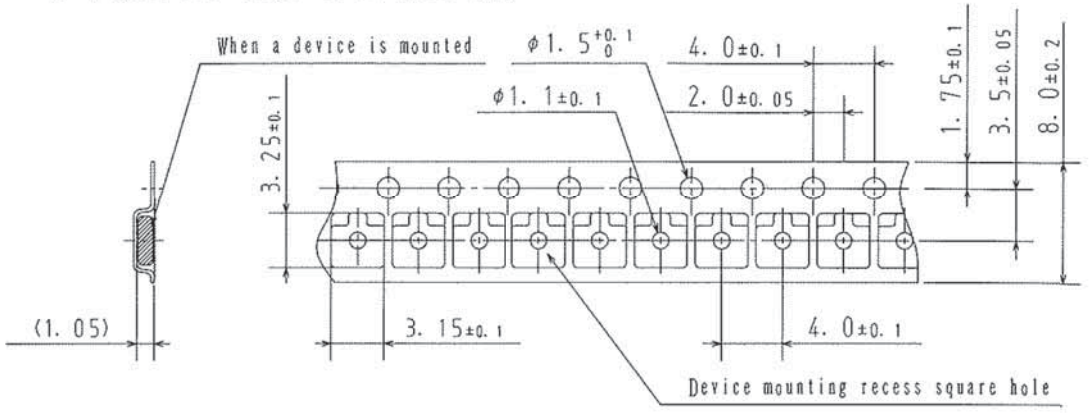


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

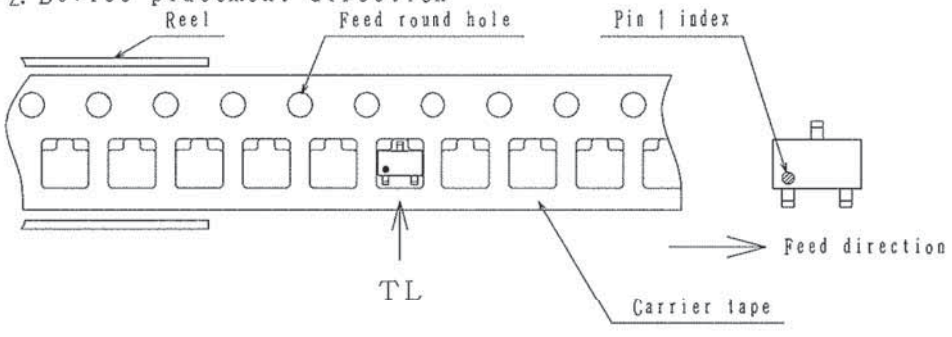
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



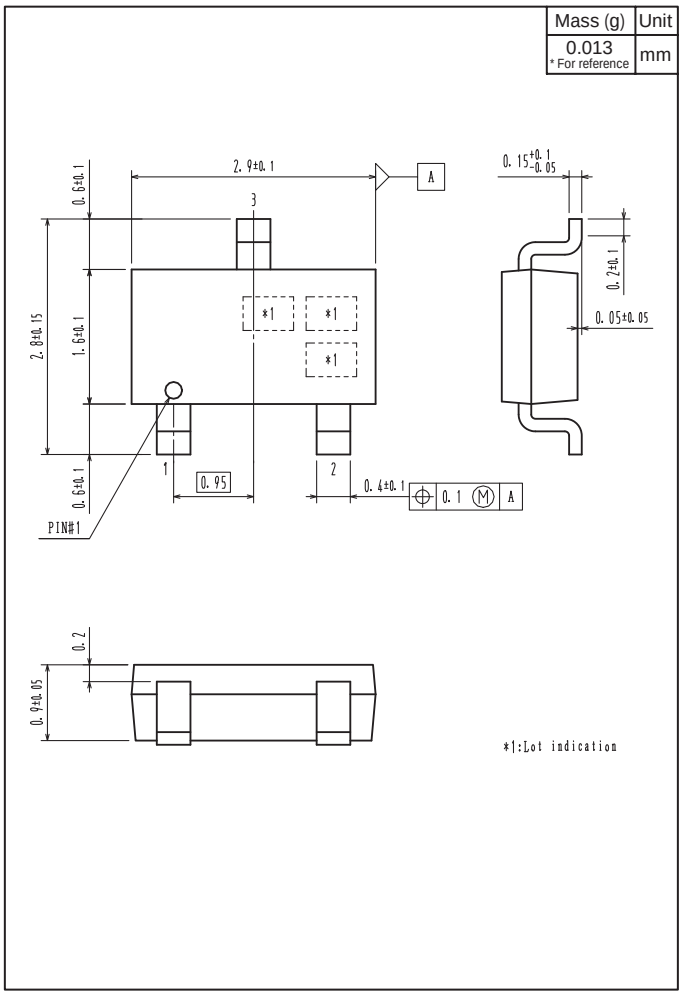
2-2. Device placement direction



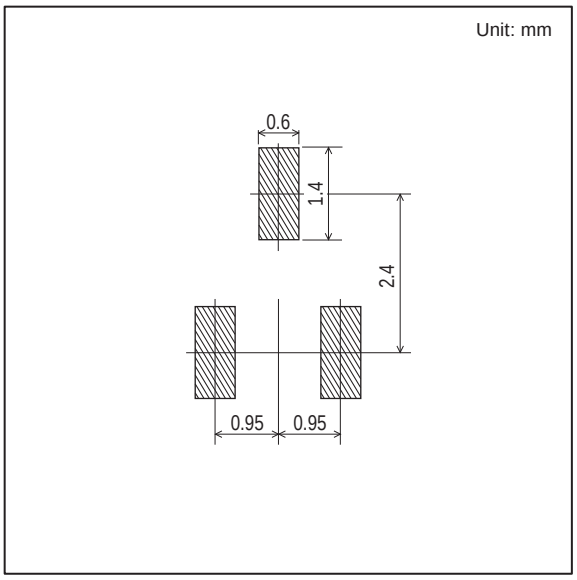
Those with one electrode terminal on the feed hole side·····TL

Outline Drawing

CPH3360-TL-H



Land Pattern Example



Note on usage : Since the CPH3360 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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