



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## SMP3003 — P-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)1}=6.2m\Omega$  (typ.)
- Input capacitance  $C_{iss}=13400pF$  (typ.)
- 4V drive

### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-75	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-100	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-400	A
Allowable Power Dissipation	$P_D$	$T_c=25^\circ C$	90	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	$E_{AS}$		468	mJ
Avalanche Current *2	$I_{AV}$		-60	A

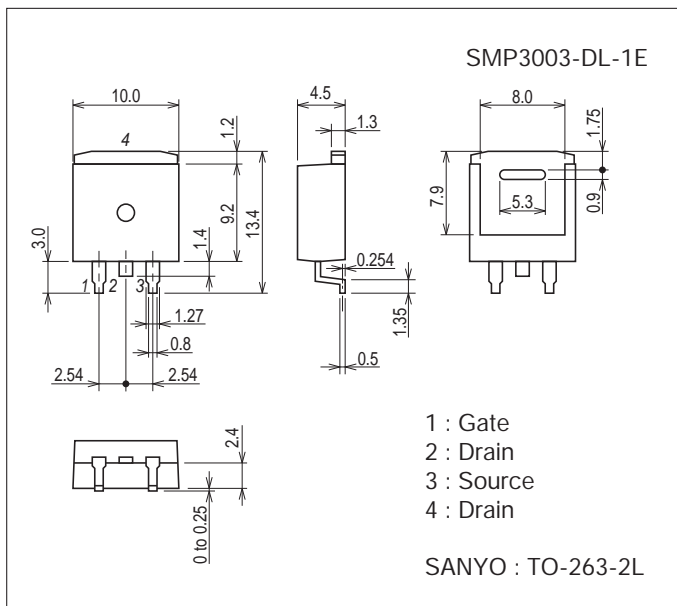
Note : \*1  $V_{DD}=-48V$ ,  $L=100\mu H$ ,  $I_{AV}=-60A$  (Fig.1)

\*2  $L \leq 100\mu H$ , Single pulse

### Package Dimensions

unit : mm (typ)

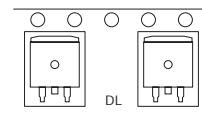
7535-001



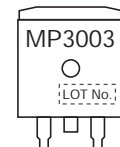
### Product & Package Information

- Package : TO-263-2L
- JEITA, JEDEC : SC-83, TO-263
- Minimum Packing Quantity : 800 pcs./reel

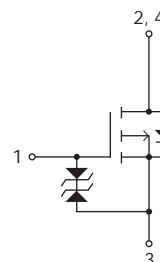
### Packing Type: DL



### Marking



### Electrical Connection



# SMP3003

## 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	-75			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-75V, V <sub>GS</sub> =0V			-10	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-50A		140		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-50A, V <sub>GS</sub> =-10V		6.2	8.0	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-50A, V <sub>GS</sub> =-4V		8.0	11	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-20V, f=1MHz		13400		pF
Output Capacitance	C <sub>oss</sub>			1000		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			740		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			95		ns
Rise Time	t <sub>r</sub>	See Fig.2		1000		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			800		ns
Fall Time	t <sub>f</sub>			820		ns
Total Gate Charge	Q <sub>g</sub>			280		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-48V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-100A		50		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			55		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> =-100A, V <sub>GS</sub> =0V		-1.0	-1.5
Reverse Recovery Time	t <sub>rr</sub>	See Fig.3		120		ns
Reverse Recovery Charge	Q <sub>rr</sub>		I <sub>S</sub> =-100A, V <sub>GS</sub> =0V, di/dt=-100A/μs		380	

Fig.1 Unclamped Inductive Switching Test Circuit

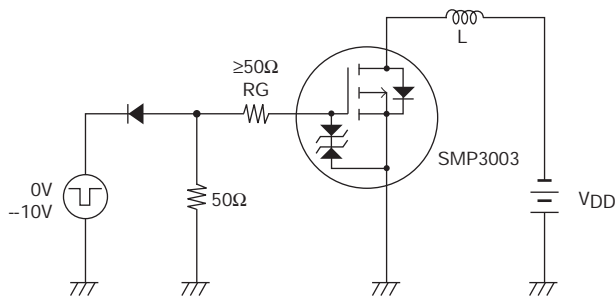


Fig.2 Switching Time Test Circuit

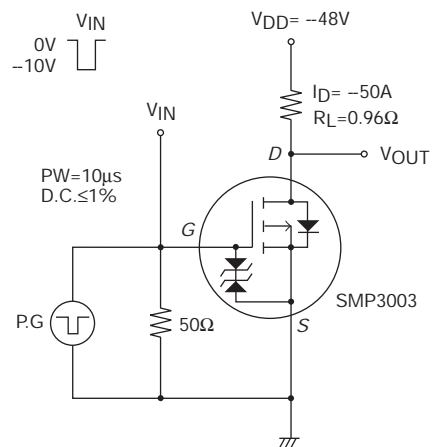
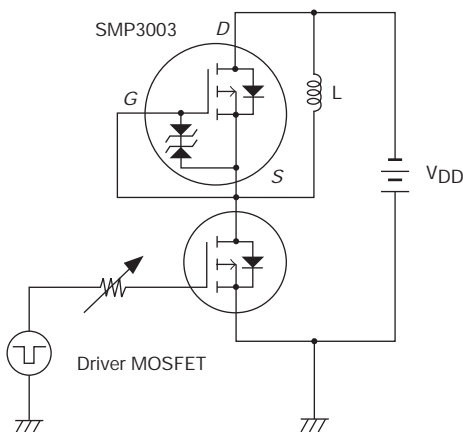


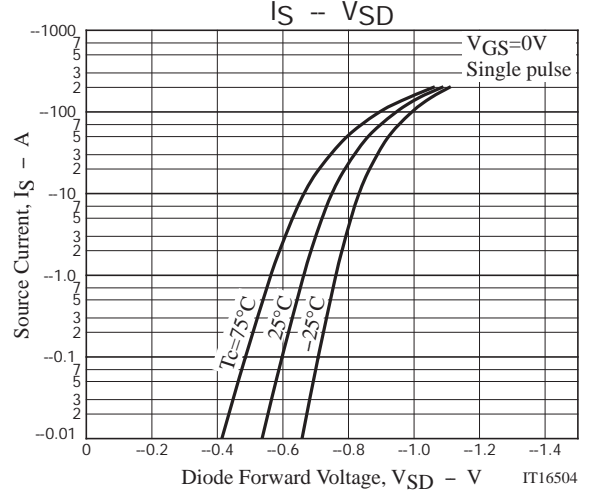
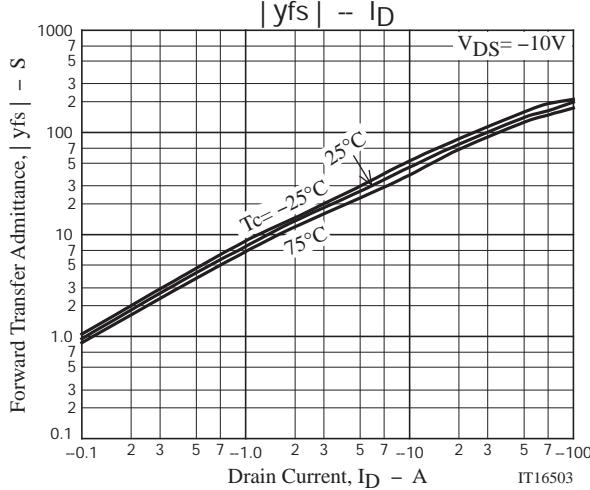
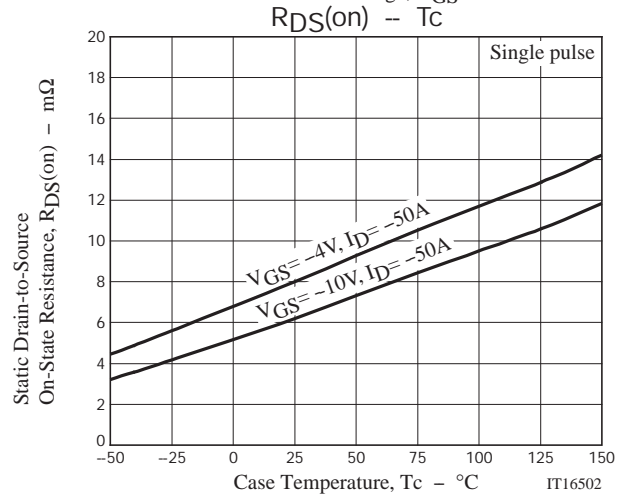
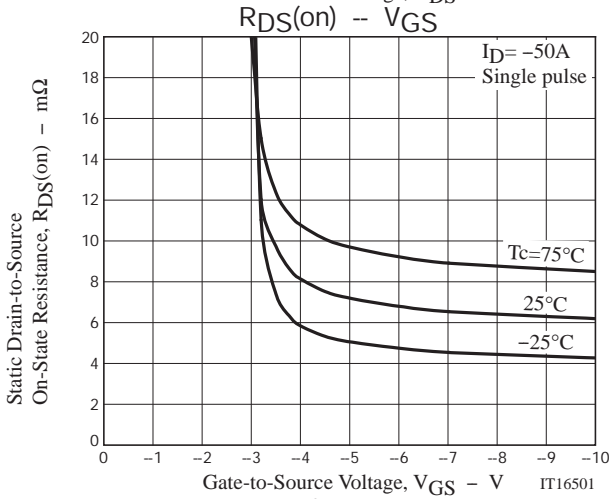
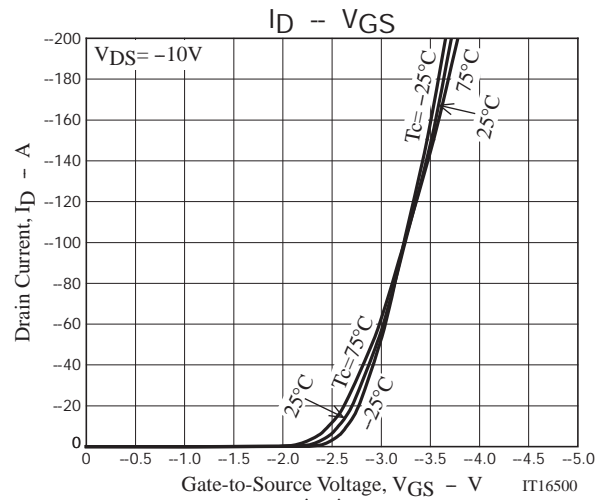
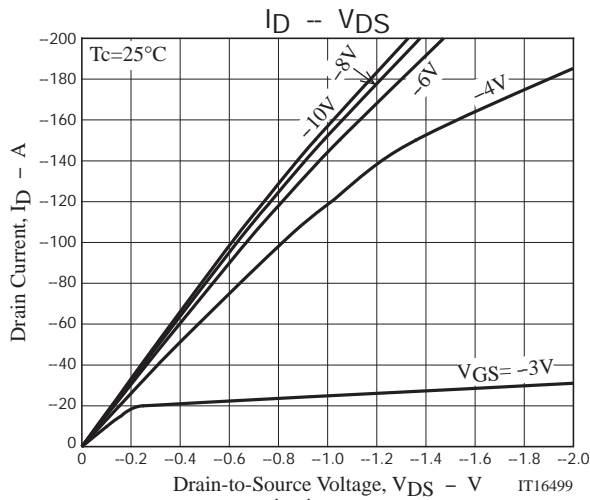
Fig.3 Reverse Recovery Time Test Circuit



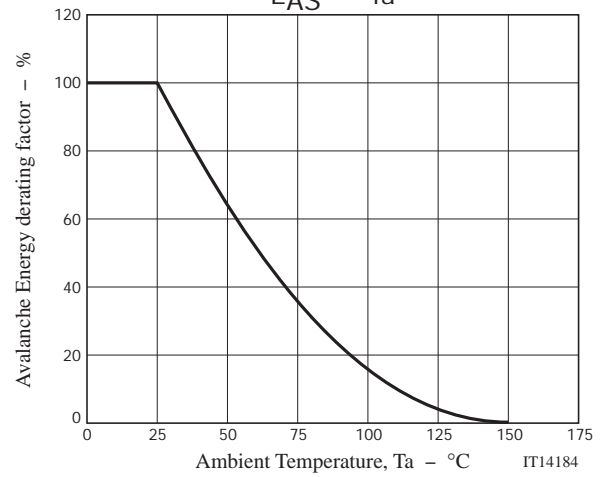
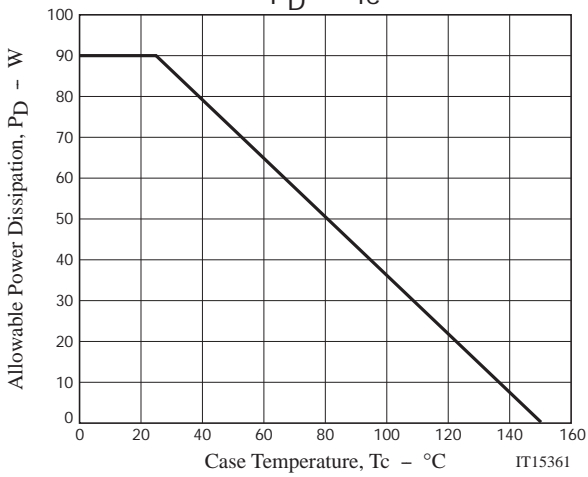
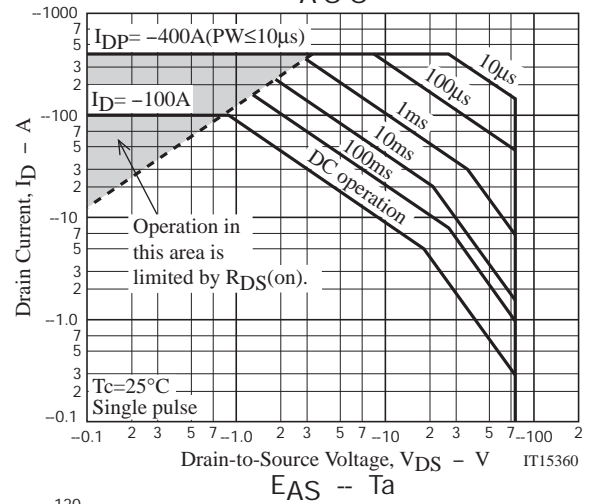
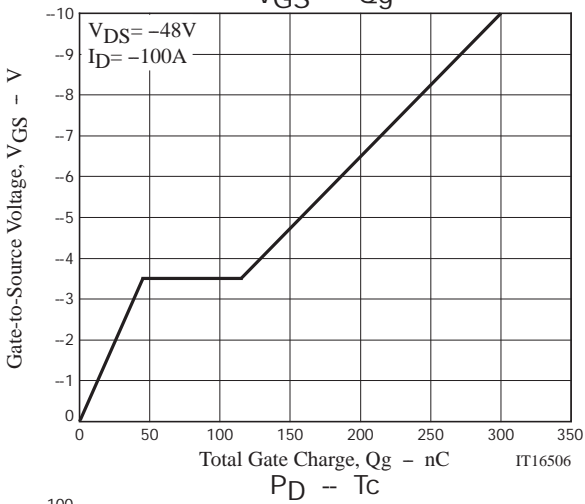
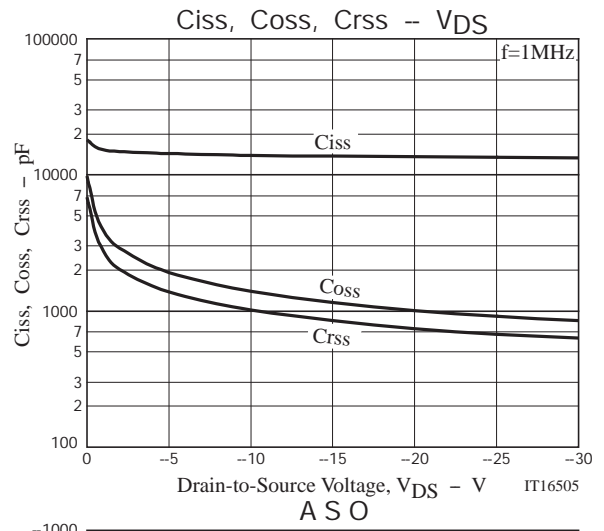
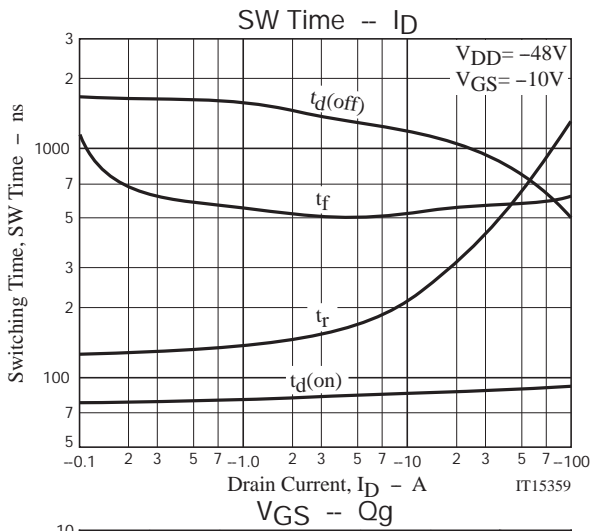
# SMP3003

## Ordering Information

Device	Package	Shipping	memo
SMP3003-DL-1E	TO-263-2L	800pcs./reel	Pb Free



# SMP3003



# SMP3003

## Taping Specification

SMP3003-DL-1E

### 1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			Packing format	
	Reel	Inner box	Outer box	Inner BOX	Outer BOX
TO-263-2L	800	1600	6400	SPD-0V0011 2 reel contained Dimensions:mm (external) 351×340×68	SPD-0V0009 4 inner boxes contained Dimensions:mm (external) 390×370×318

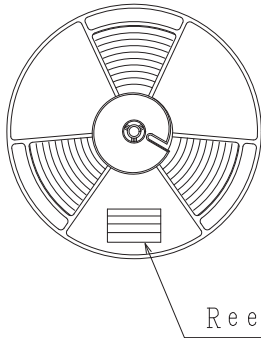
Reel label, Inner box label

Outer box label

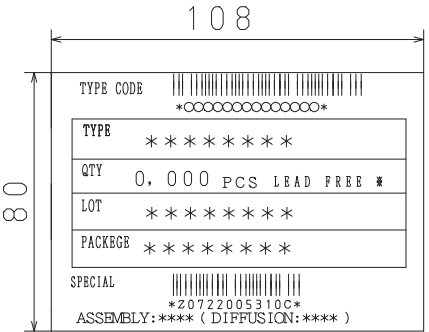
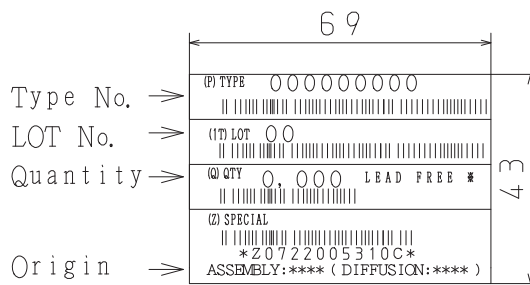
#### Packing method

(unit:mm)

It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.



Reel label



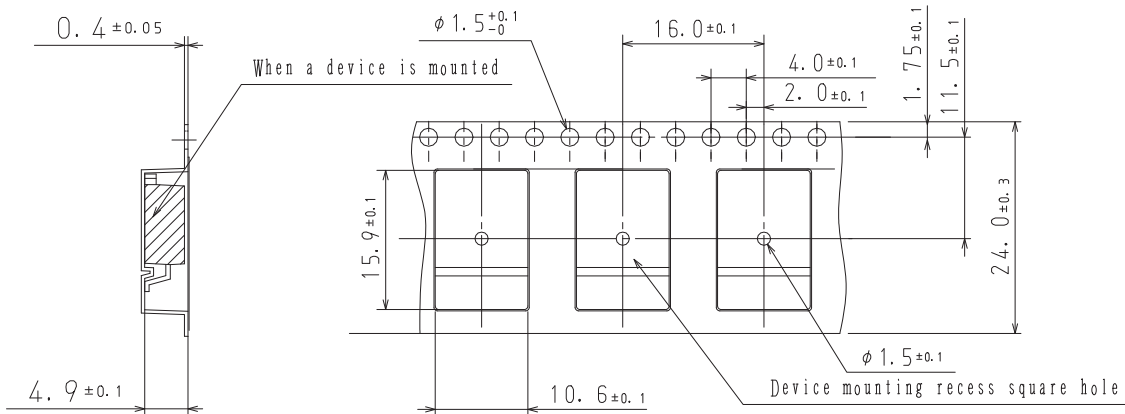
#### NOTE (1)

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

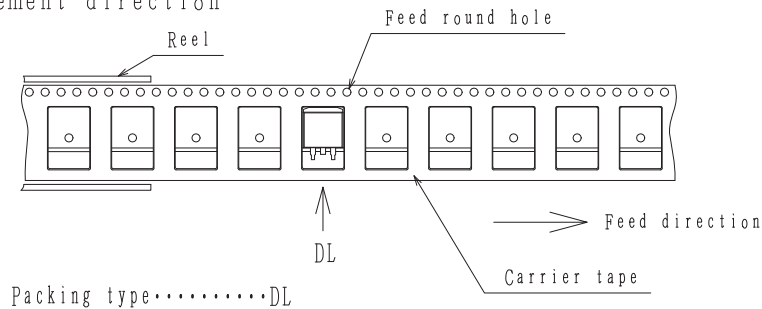
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

### 2. Taping configuration

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

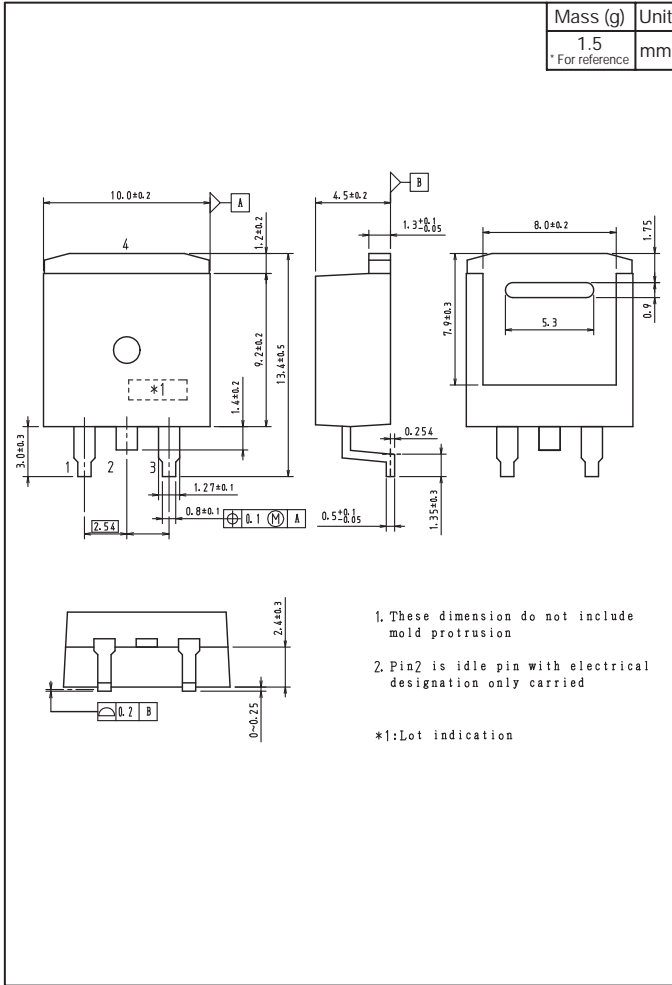


#### 2-2. Device placement direction

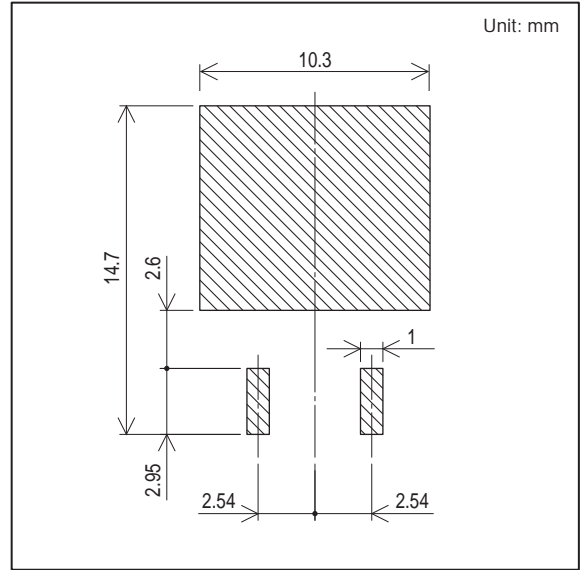


# SMP3003

## Outline Drawing SMP3003-DL-1E



## Land Pattern Example



Note on usage : Since the SMP3003 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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