



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)	$I_{DP}$	$PW \leq 10\mu s, \text{ duty cycle} \leq 1\%$	-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

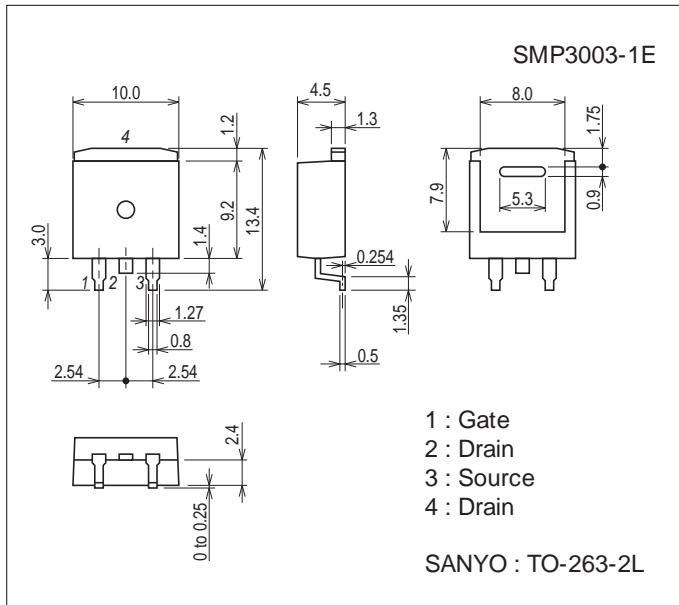
Note : \*1  $V_{DD}=-48V, L=100\mu H, I_{AV}=-60A$  (Fig.1)

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

**Package Dimensions**

unit : mm (typ)

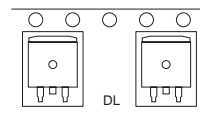
7535-001



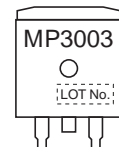
**Product & Package Information**

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

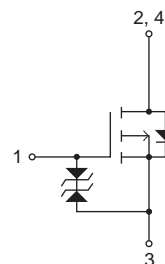
**Packing Type: DL**



**Marking**



**Electrical Connection**



# SMP3003

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-75			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -75\text{V}, V_{GS} = 0\text{V}$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}, I_D = -1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}, I_D = -50\text{A}$		140		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -50\text{A}, V_{GS} = -10\text{V}$		6.2	8.0	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -50\text{A}, V_{GS} = -4\text{V}$		8.0	11	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -20\text{V}, f = 1\text{MHz}$		13400		$\text{pF}$
Output Capacitance	$C_{oss}$			1000		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$			740		$\text{pF}$
Turn-ON Delay Time	$t_{d(on)}$			95		ns
Rise Time	$t_r$	See Fig.2		1000		ns
Turn-OFF Delay Time	$t_{d(off)}$			800		ns
Fall Time	$t_f$			820		ns
Total Gate Charge	$Q_g$			280		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -48\text{V}, V_{GS} = -10\text{V}, I_D = -100\text{A}$		50		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			55		nC
Diode Forward Voltage	$V_{SD}$		$I_S = -100\text{A}, V_{GS} = 0\text{V}$		-1.0	-1.5
Reverse Recovery Time	$t_{rr}$	See Fig.3		120		ns
Reverse Recovery Charge	$Q_{rr}$	$I_S = -100\text{A}, V_{GS} = 0\text{V}, di/dt = -100\text{A}/\mu\text{s}$		380		nC

Fig.1 Avalanche Resistance Test Circuit

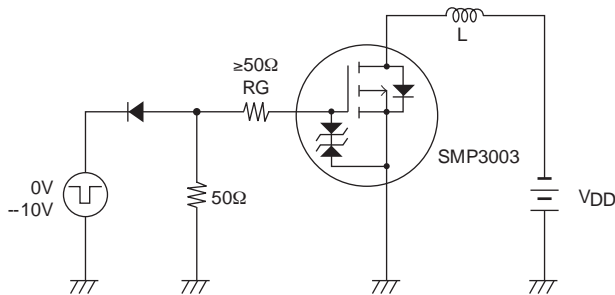


Fig.2 Switching Time Test Circuit

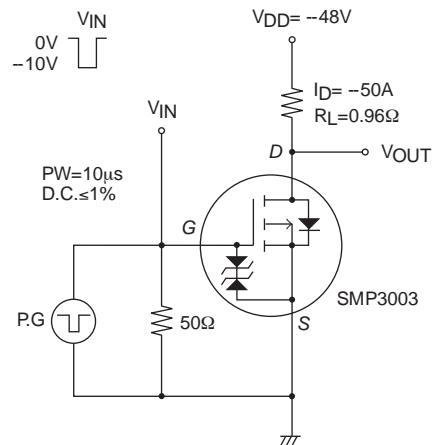
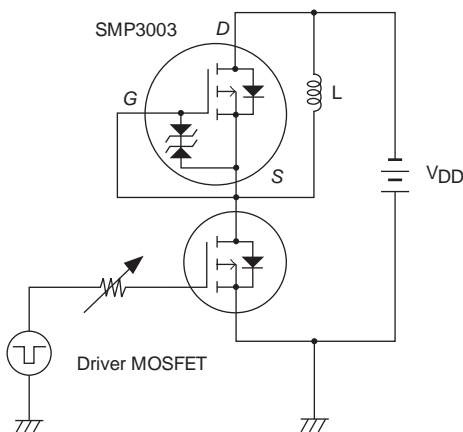


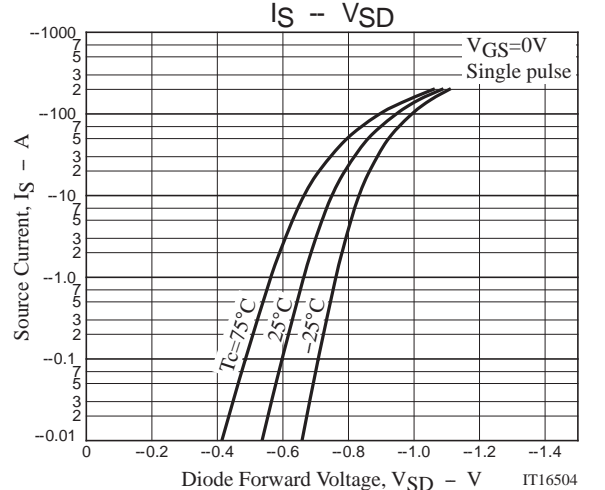
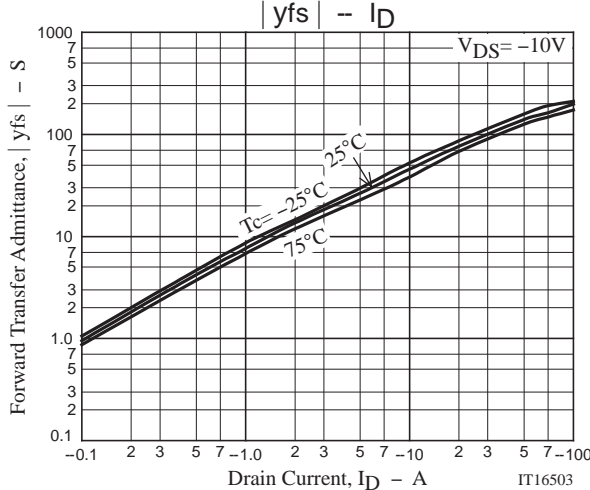
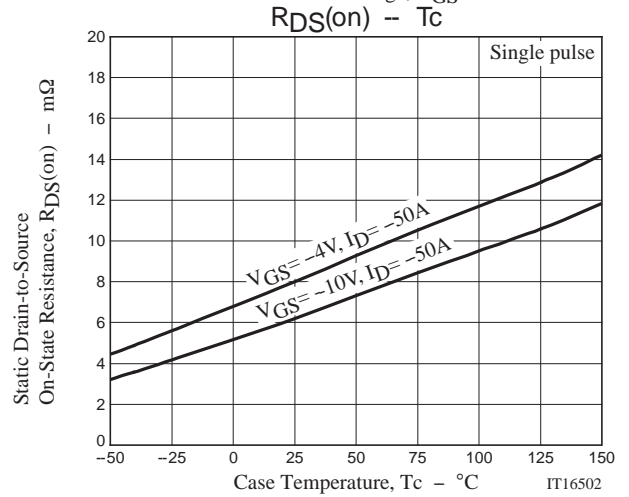
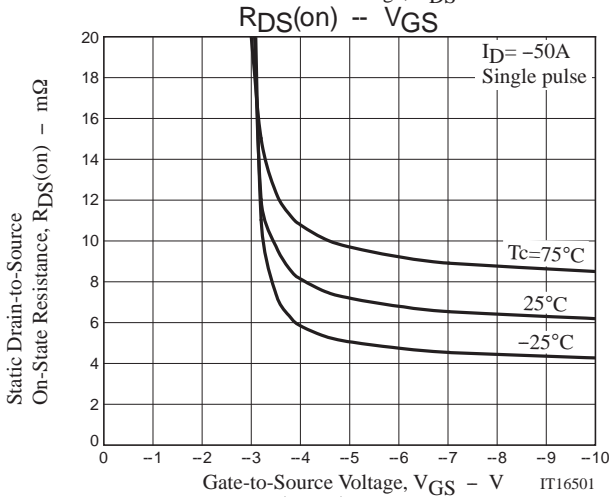
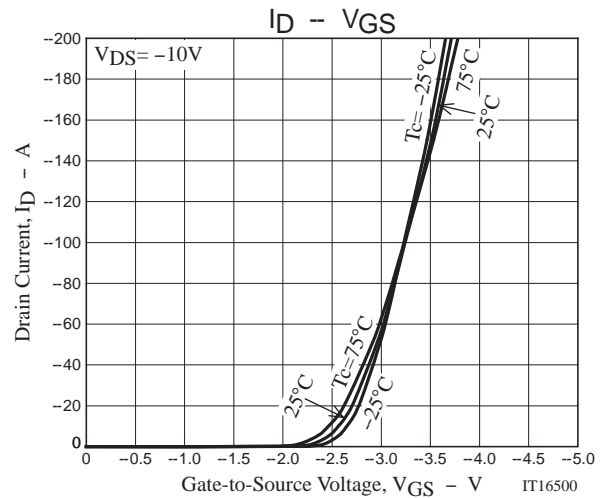
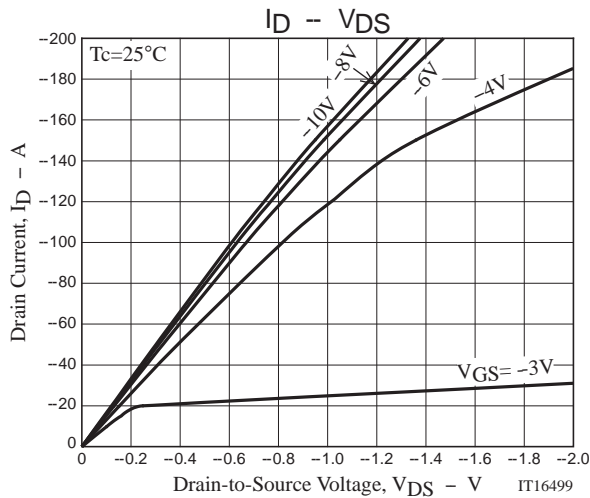
Fig.3 Reverse Recovery Time Test Circuit



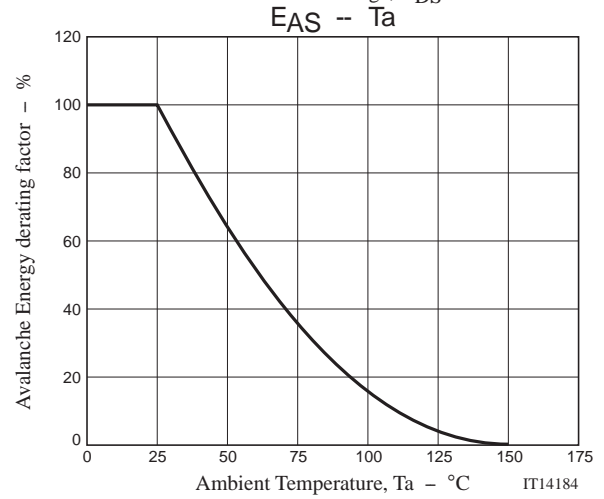
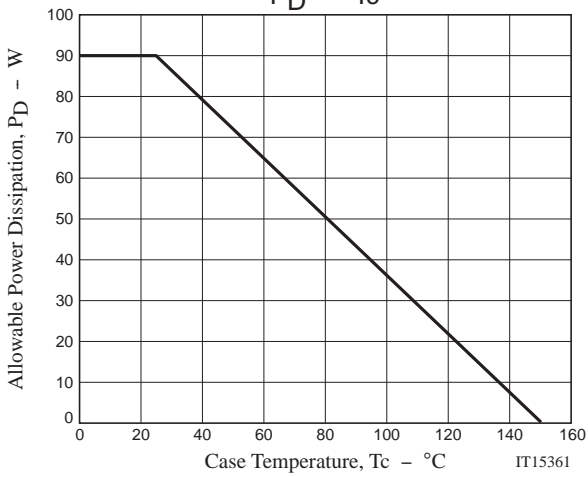
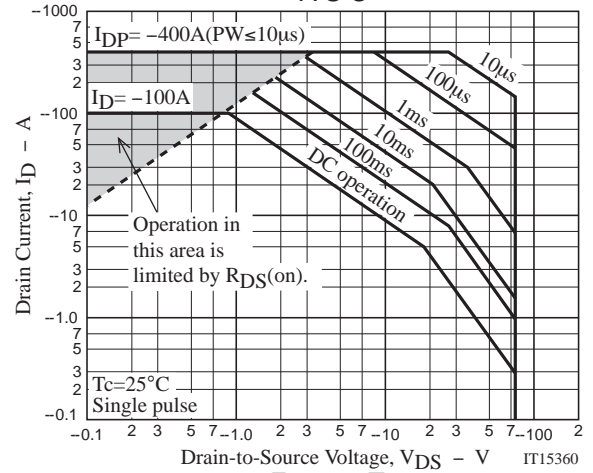
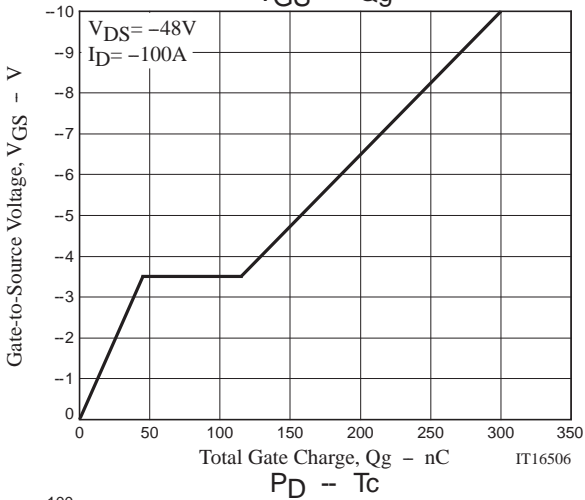
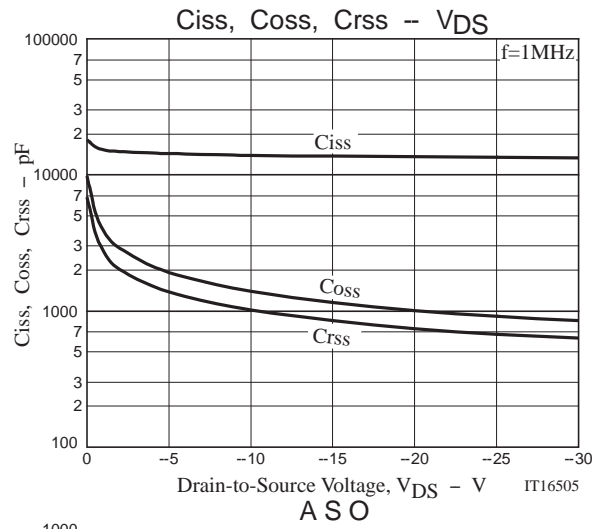
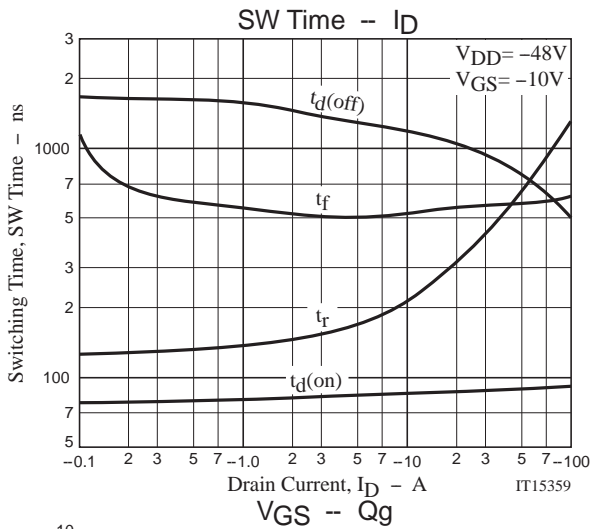
# SMP3003

## Ordering Information

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



# SMP3003



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## 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

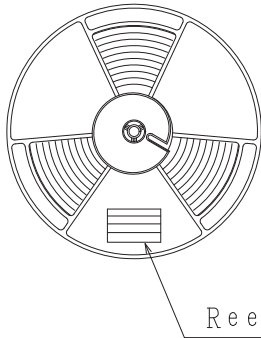
Reel label, Inner box label

Outer box label

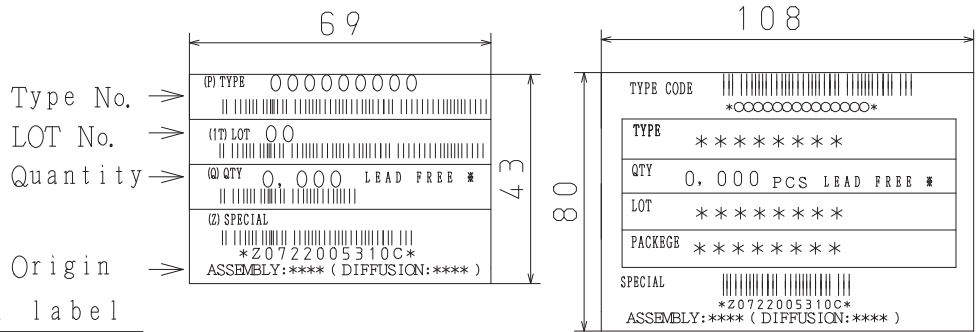
#### Packing method

(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



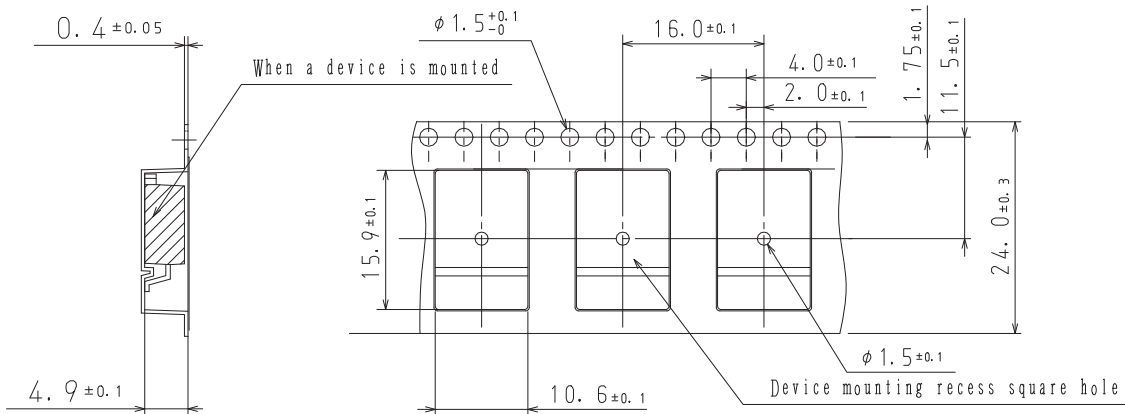
#### NOTE (1)

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

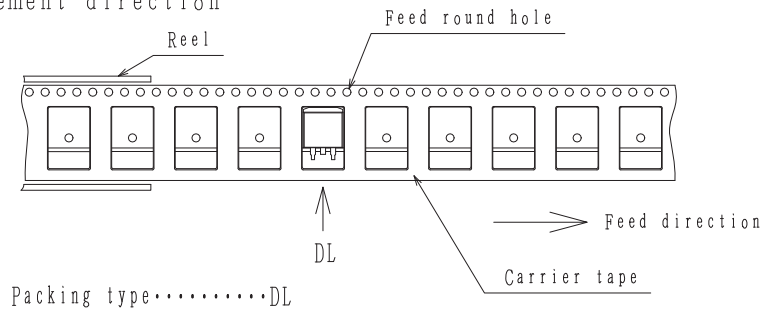
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

### 2. Taping configuration

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



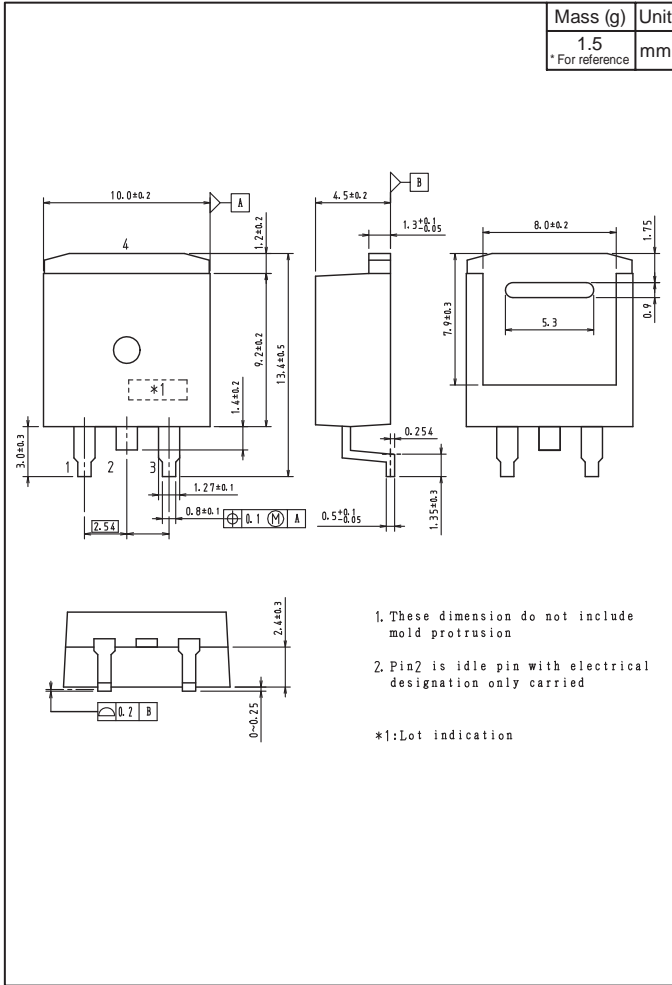
#### 2-2. Device placement direction



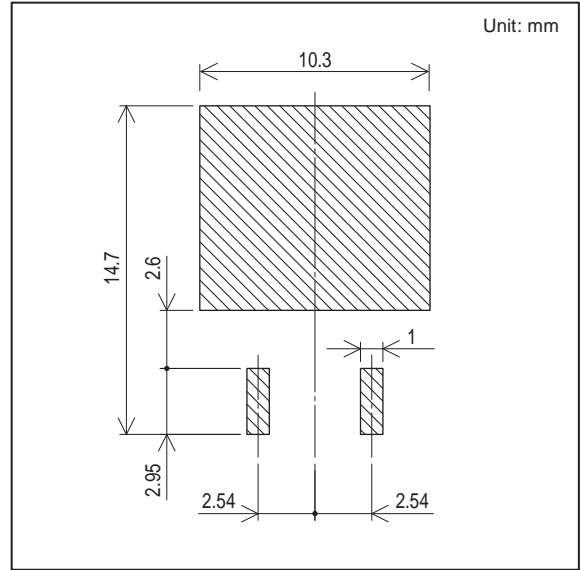
# SMP3003

## 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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