



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}		± 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

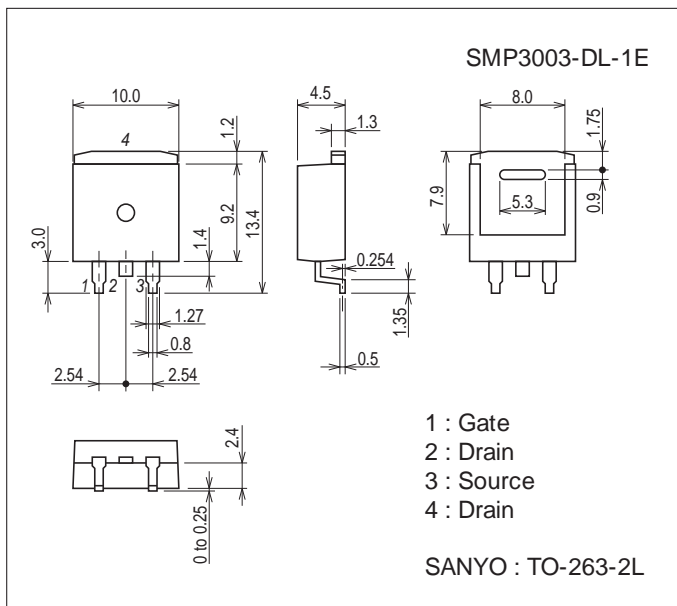
Note : *1 $V_{DD}=-48V$, $L=100\mu H$, $I_{AV}=-60A$ (Fig.1)

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

Package Dimensions

unit : mm (typ)

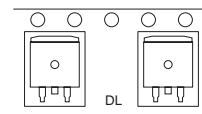
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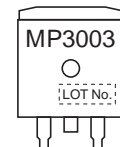
Product & Package Information

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

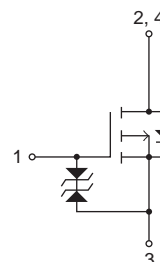
Packing Type: DL



Marking



Electrical Connection



SMP3003

Electrical Characteristics at Ta=25°C

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

Fig.1 Unclamped Inductive Switching Test Circuit

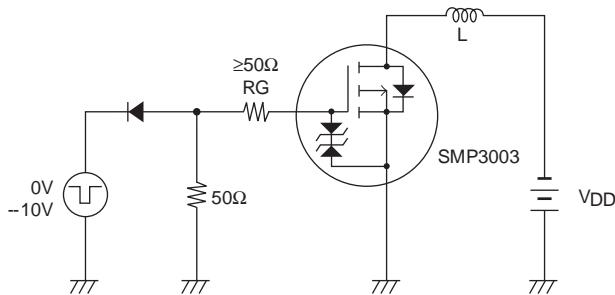


Fig.2 Switching Time Test Circuit

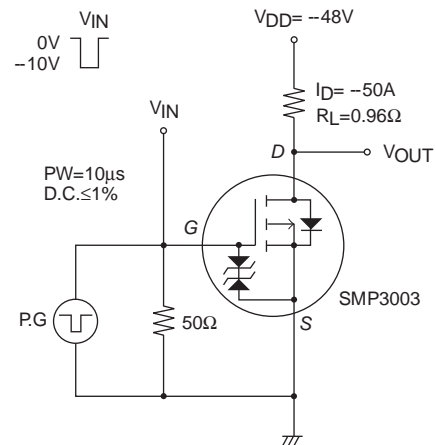
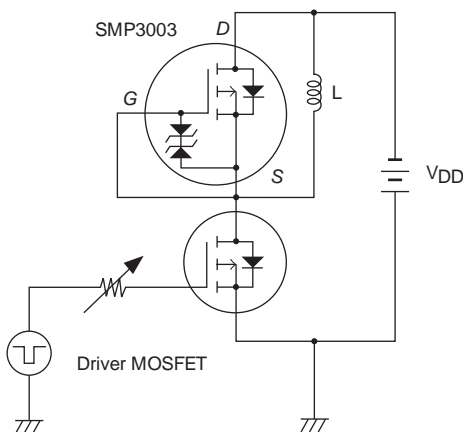


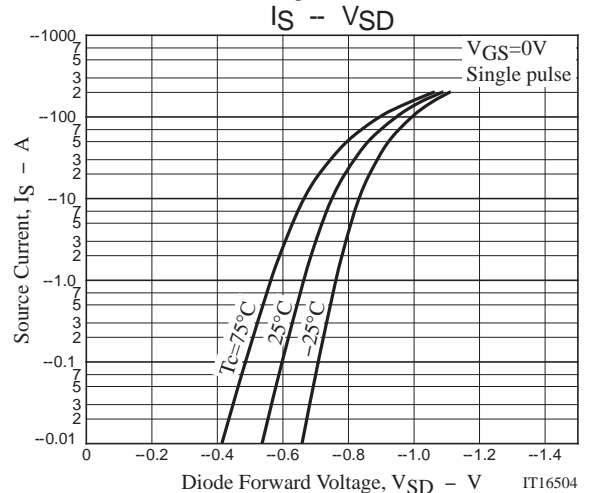
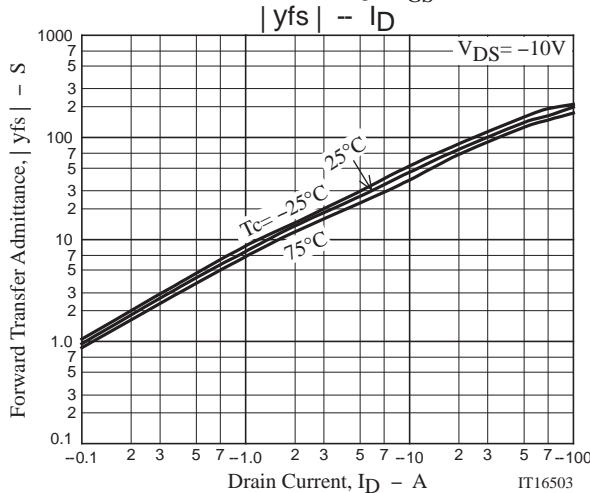
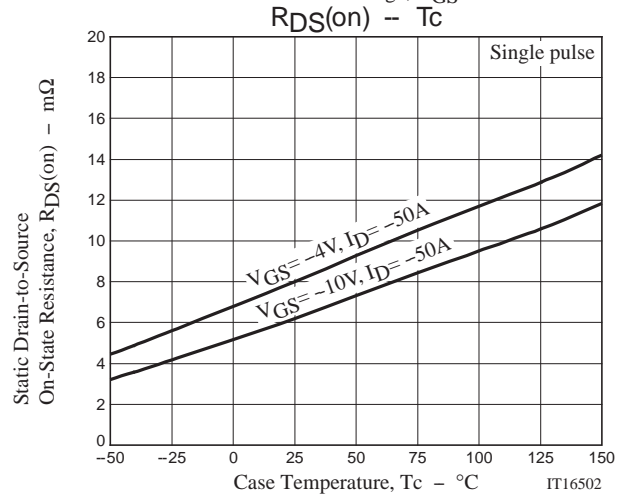
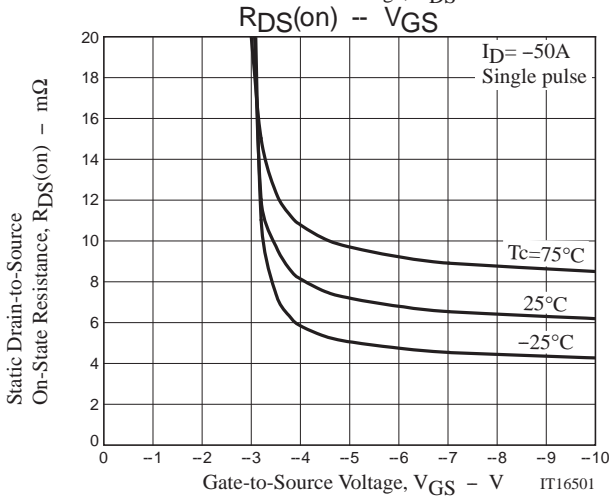
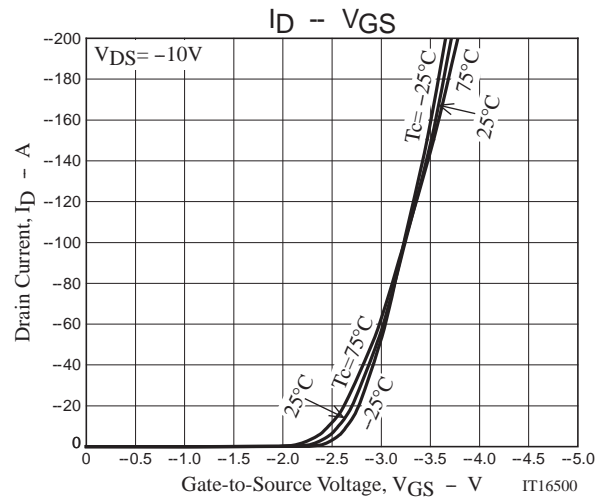
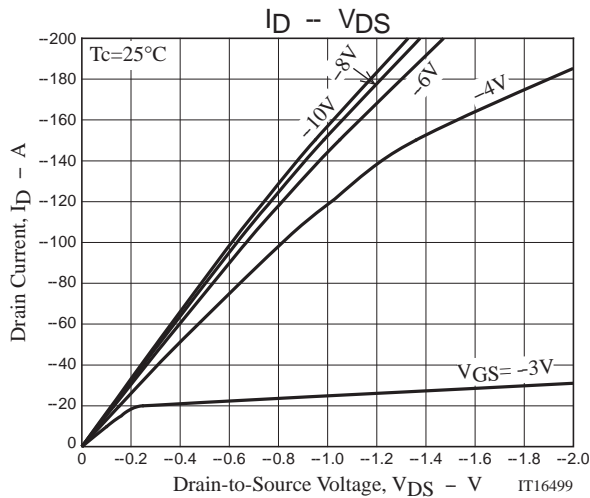
Fig.3 Reverse Recovery Time Test Circuit



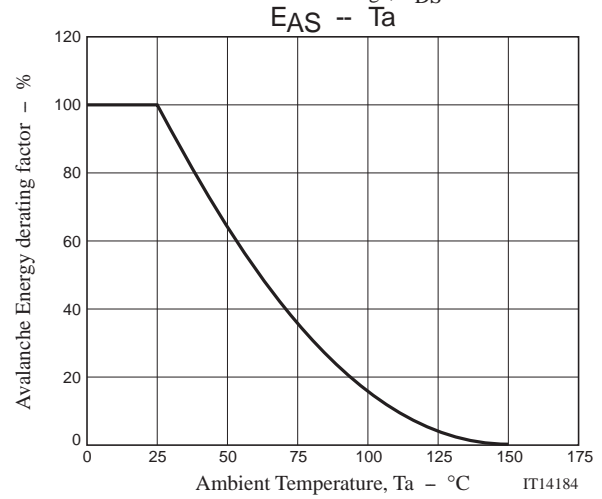
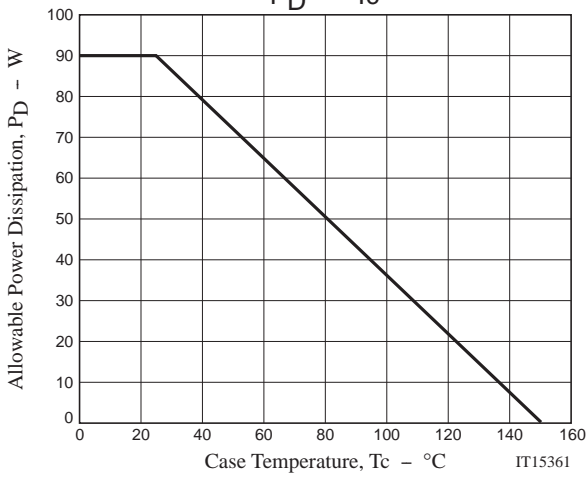
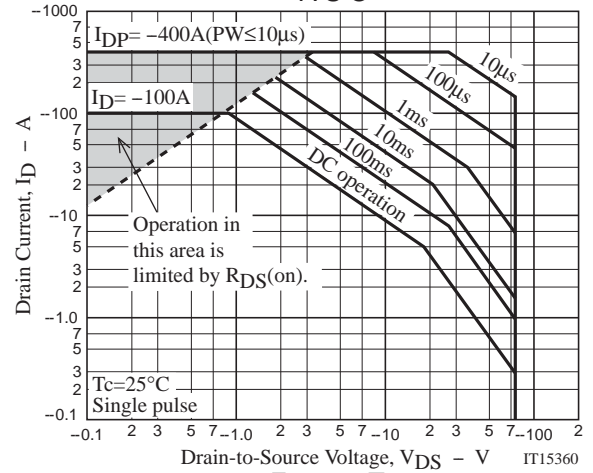
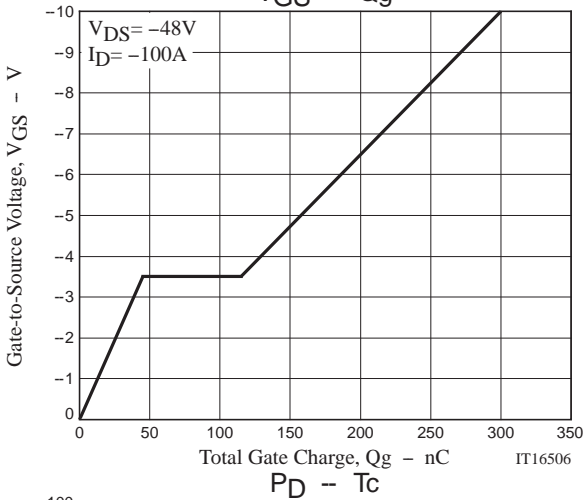
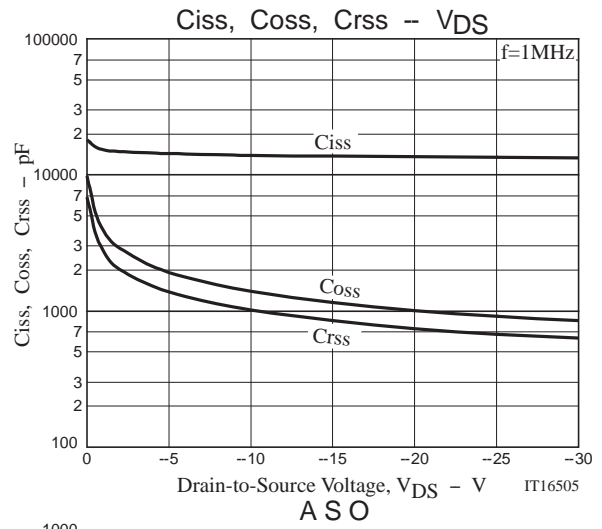
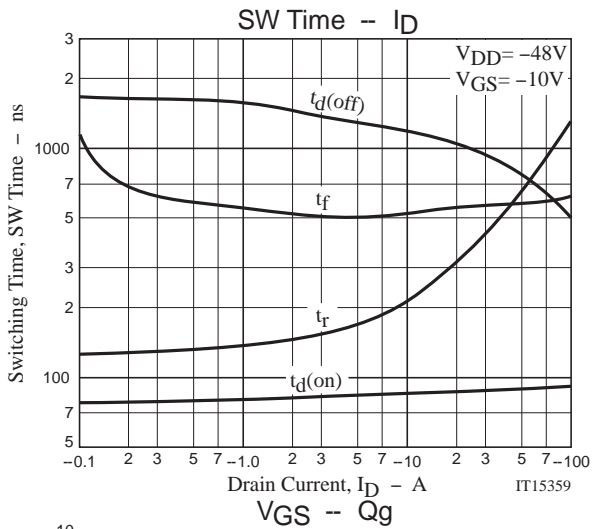
SMP3003

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

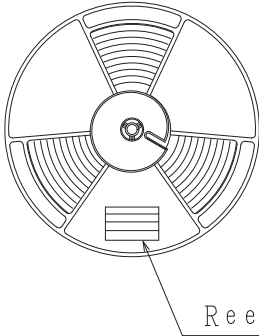
Reel label, Inner box label

Outer box label

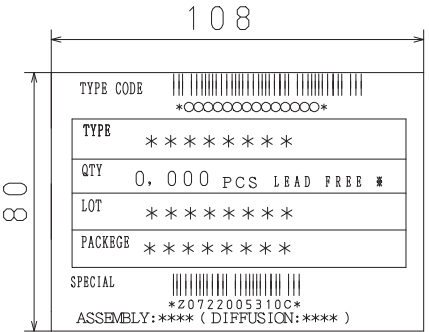
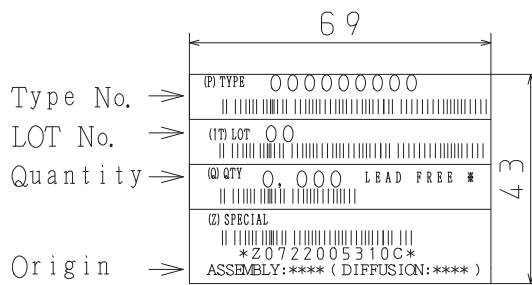
Packing method

(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



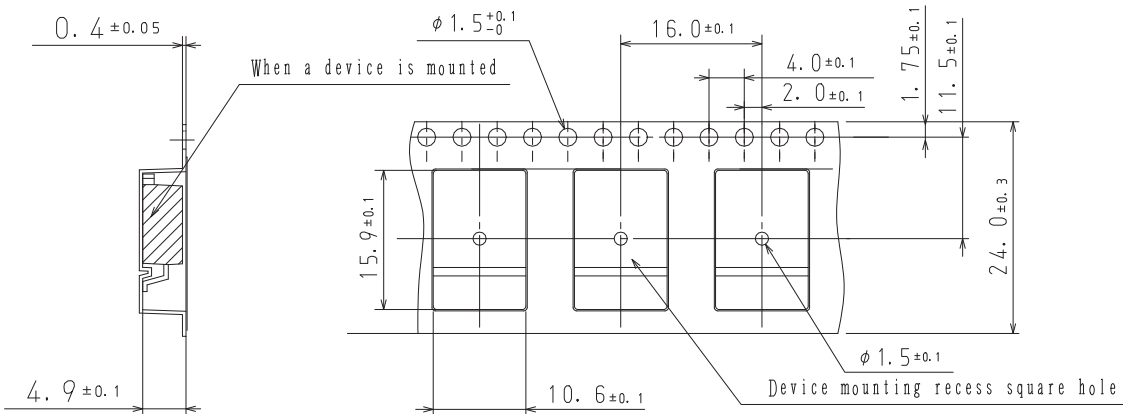
NOTE (1)

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

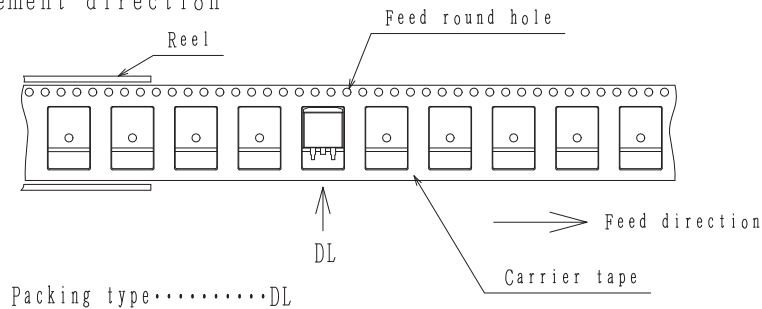
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2. Taping configuration

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



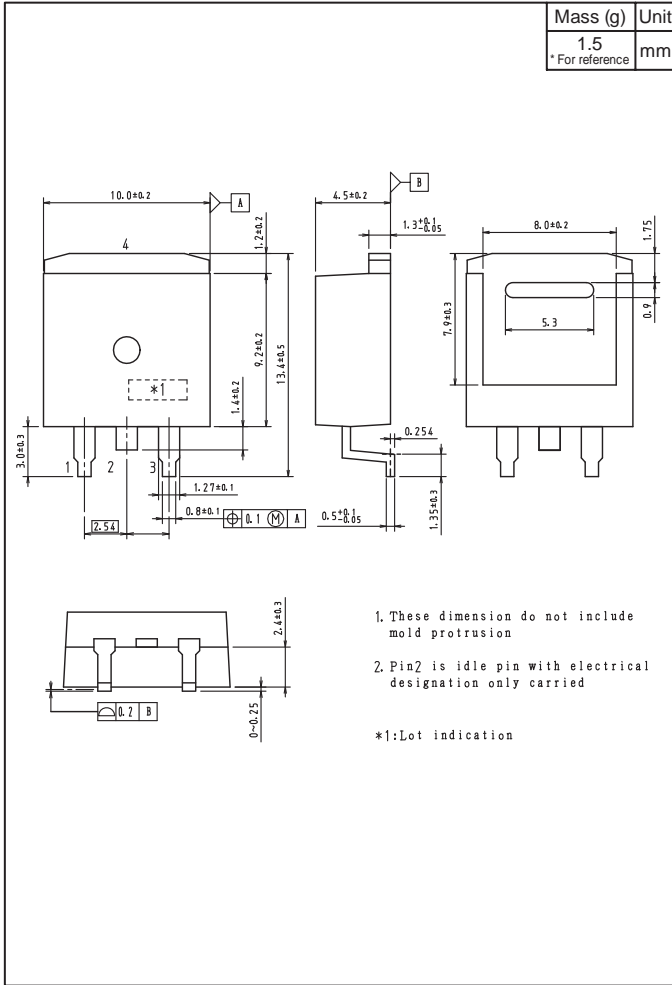
2-2. Device placement direction



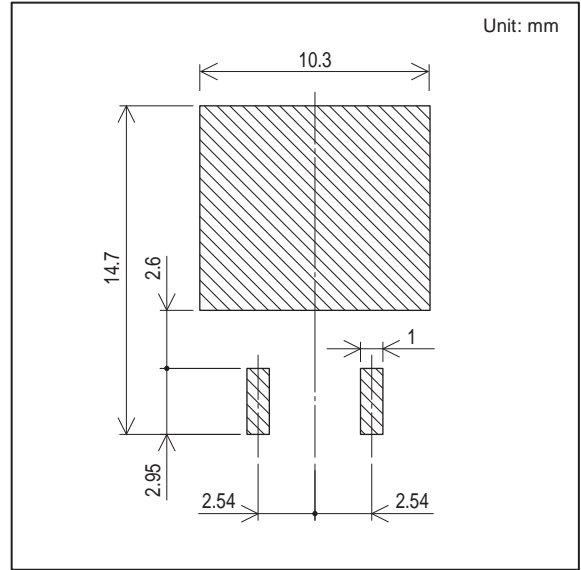
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Outline Drawing

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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