Ordering number : ENA1655C

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

SMP3003 — General-Purpose Switching Device Applications

Features

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

Specifications

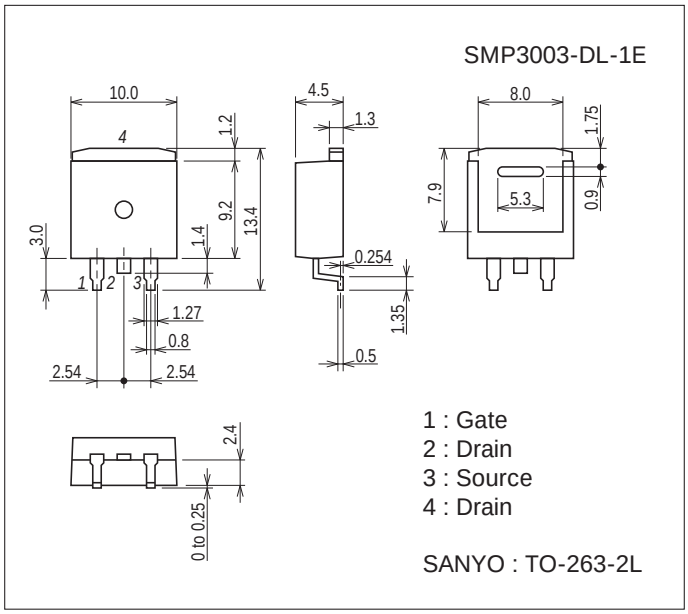
Absolute Maximum Ratings at Ta=25°C

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≤10μs, duty cycle≤1%	−400	A
Allowable Power Dissipation	P_D	Tc=25°C	90	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		468	mJ
Avalanche Current *2	I_{AV}		−60	A

Note :*1 V_{DD}=−48V, L=100μH, I_{AV}=−60A (Fig.1)
*2 L≤100μH, Single pulse

Package Dimensions

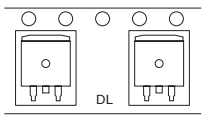
unit : mm (typ)
7535-001



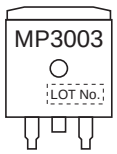
Product & Package Information

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

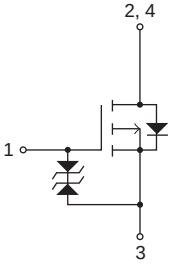
Packing Type: DL



Marking



Electrical Connection



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}=±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=−50A		140		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−50A, V_{GS}=−10V		6.2	8.0	mΩ
	R_{DS}(on)2	I_D=−50A, V_{GS}=−4V		8.0	11	mΩ
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		13400		pF
Output Capacitance	Coss			1000		pF
Reverse Transfer Capacitance	Crss			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	Qg	V_{DS}=−48V, V_{GS}=−10V, I_D=−100A		280		nC
Gate-to-Source Charge	Qgs			50		nC
Gate-to-Drain “Miller” Charge	Qgd			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/μs		380		nC

Fig.1 Unclamped Inductive Switching Test Circuit

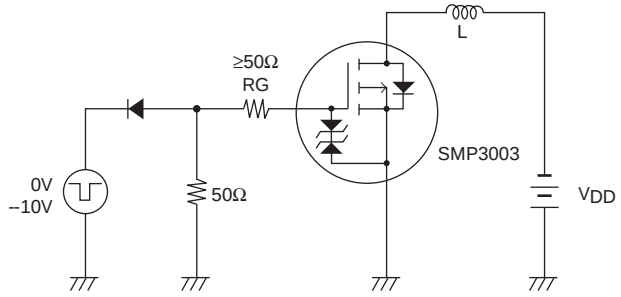


Fig.2 Switching Time Test Circuit

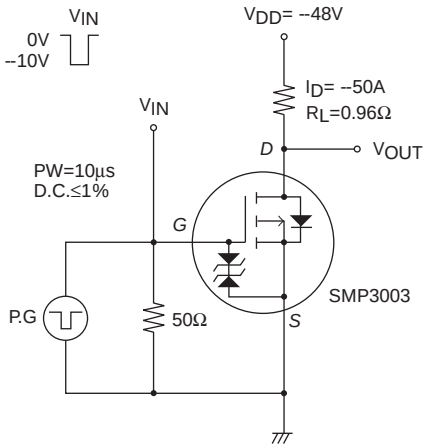
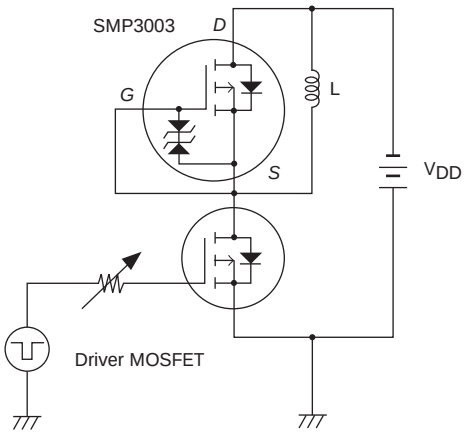
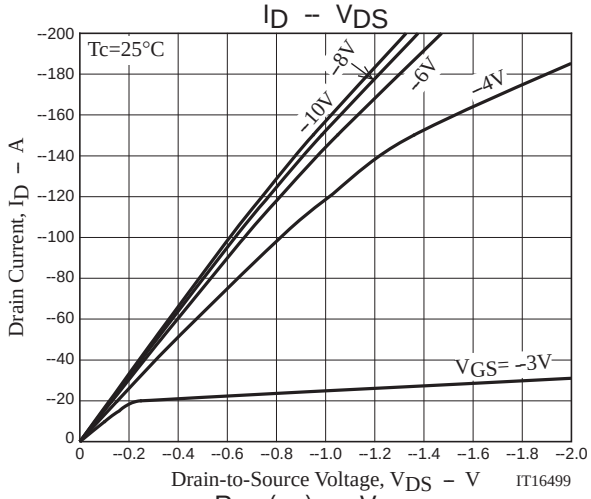


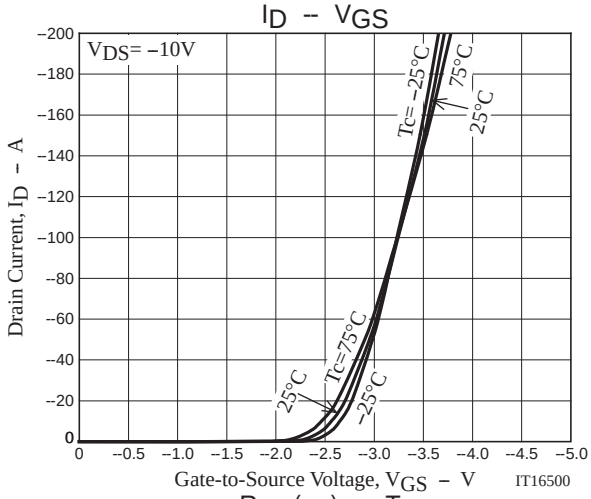
Fig.3 Reverse Recovery Time Test Circuit

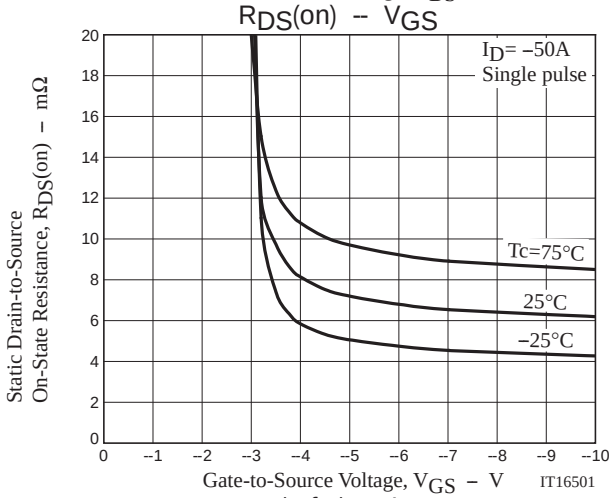


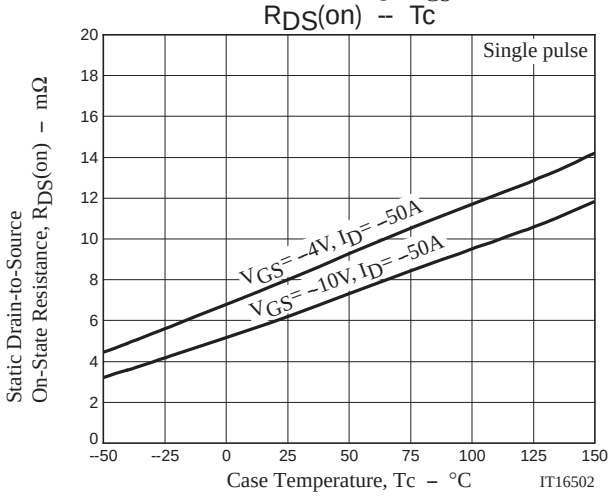
Ordering Information

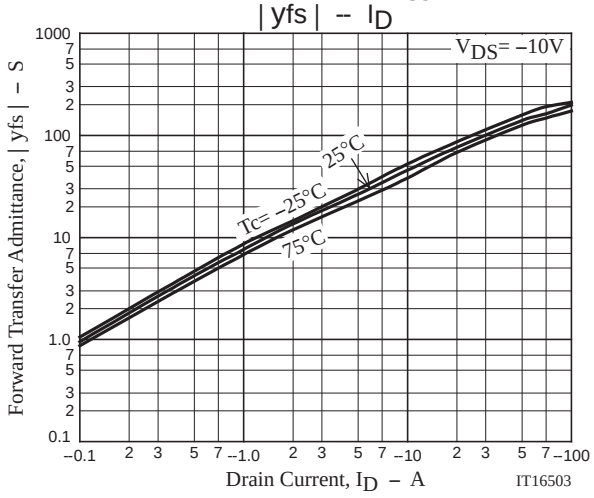
Device	Package	Shipping	memo
SMP3003-DL-1E	TO-263-2L	800pcs./reel	Pb Free

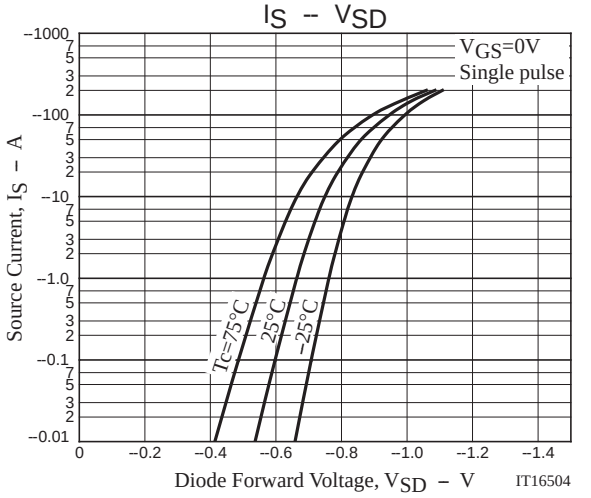


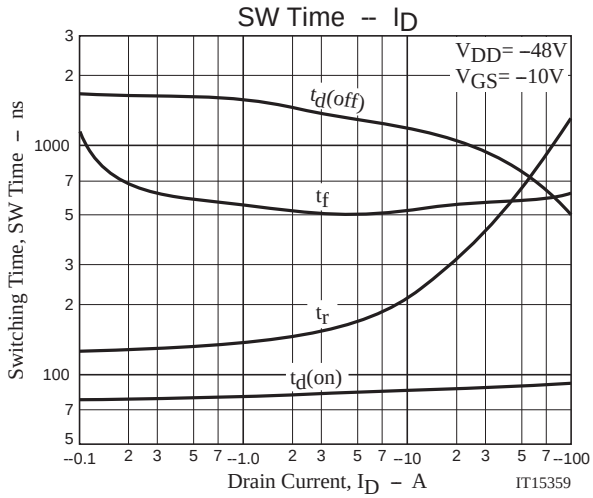


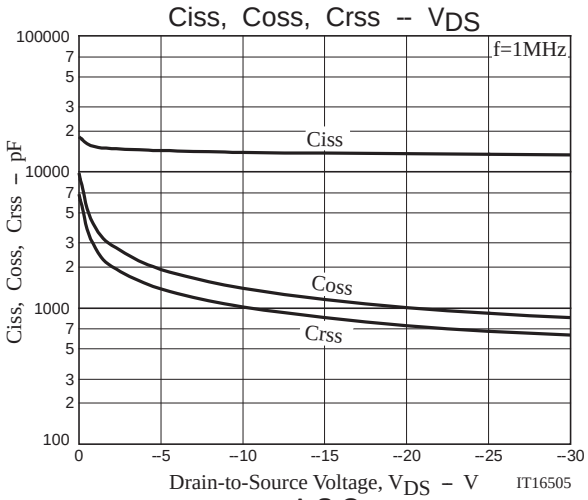


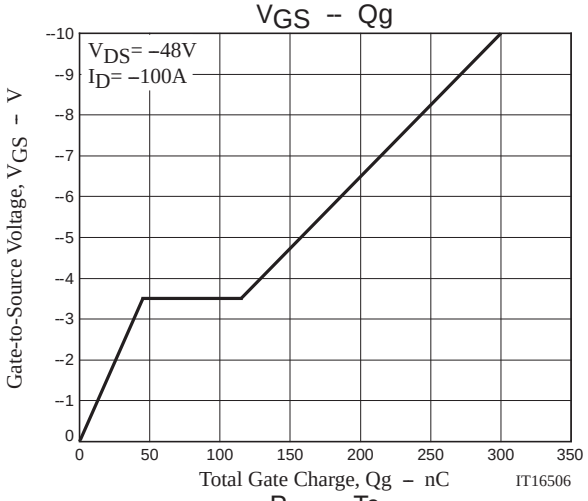


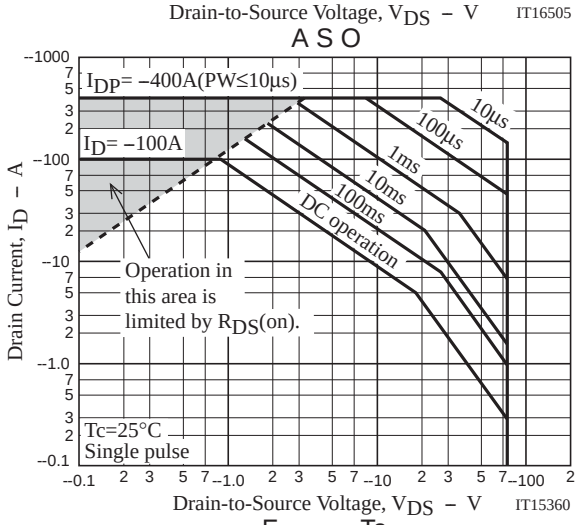


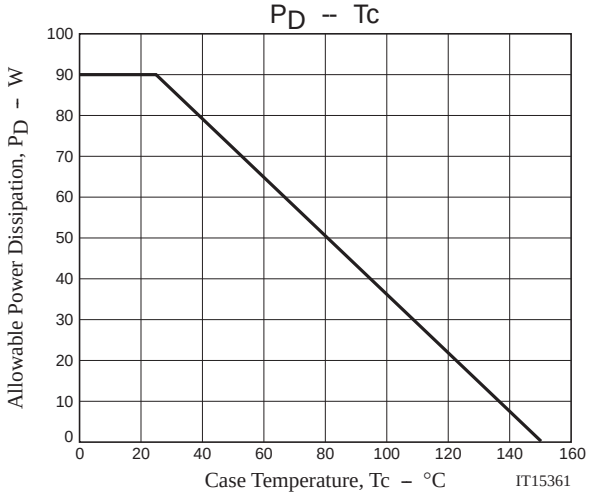


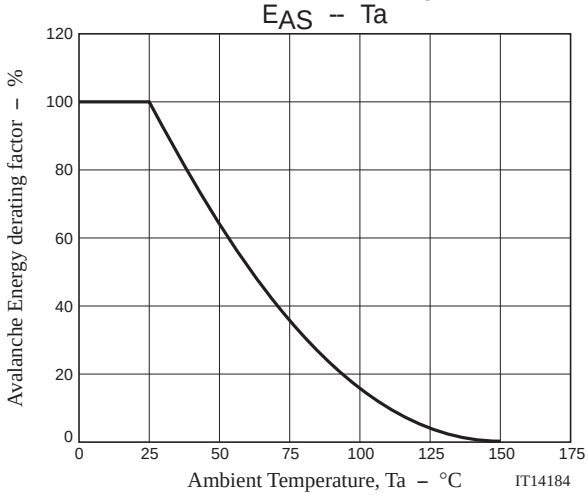

SW Time -- ID
VDD= –48V
VGS= –10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT15359


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT16505


VGS -- Qg
VDS= –48V
ID= –100A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT16506


A S O
IDP= –400A(PW≤10μs)
ID= –100A
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in
this area is
limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT15360


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT15361


EAS -- Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT14184

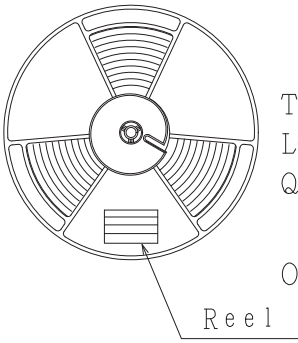
Taping Specification

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

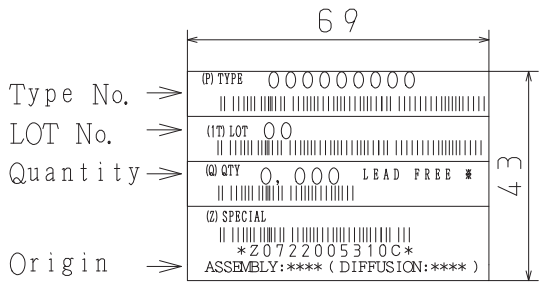
Packing method



Reel label

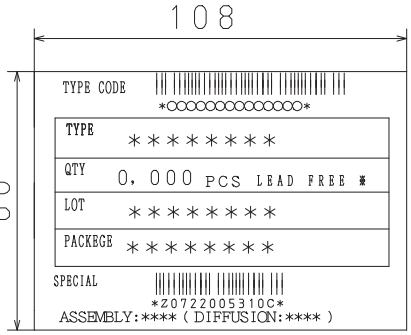
Reel label, Inner box label

(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.

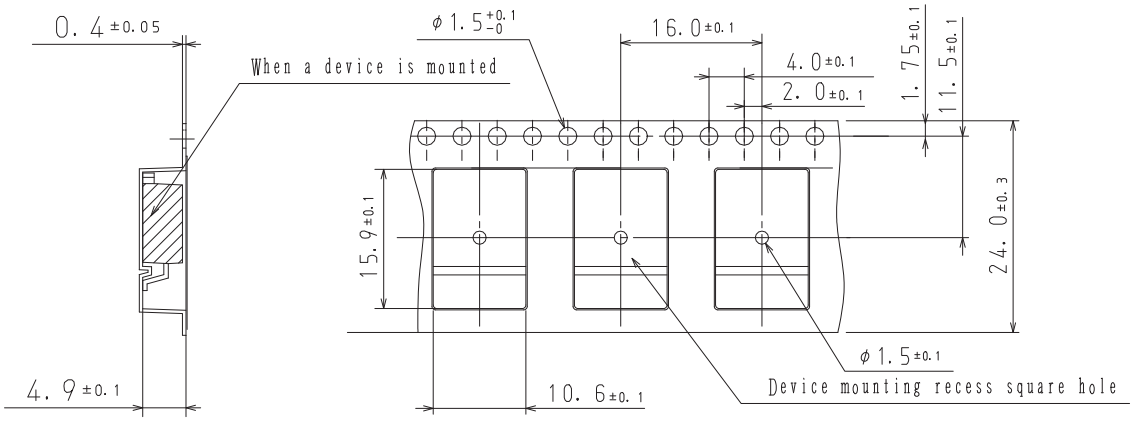


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

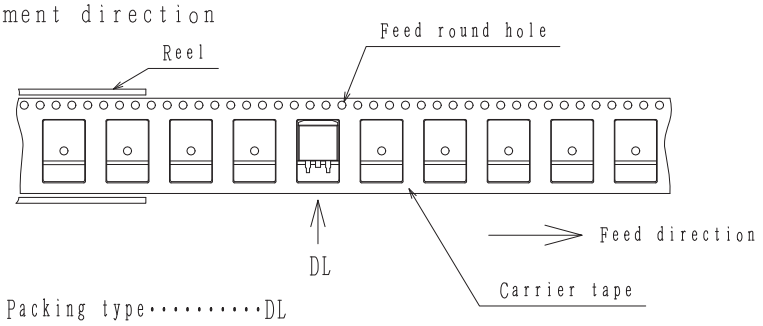
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2. Taping configuration

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



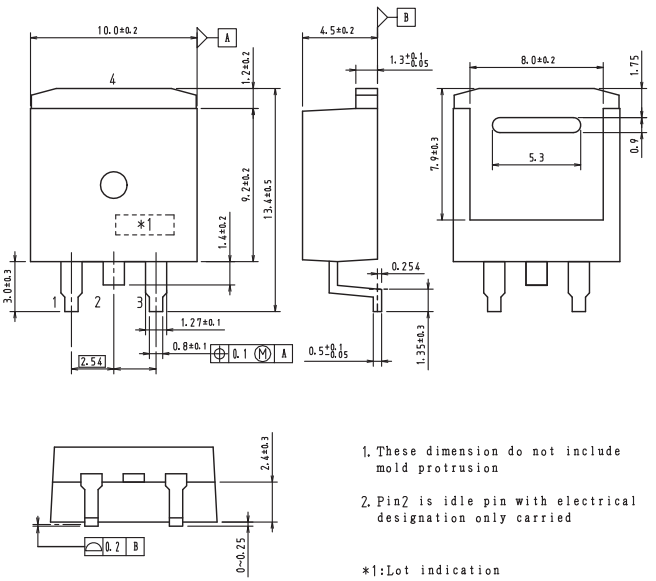
2-2. Device placement direction



Outline Drawing

SMP3003-DL-1E

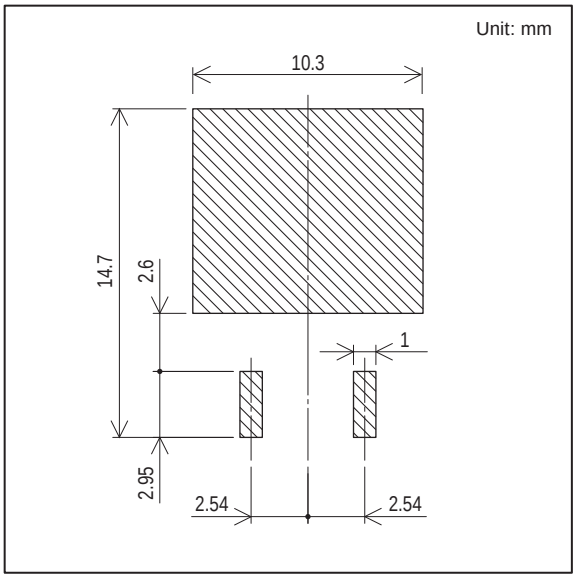
Mass (g)	Unit
1.5 * For reference	mm



1. These dimension do not include mold protrusion
2. Pin2 is idle pin with electrical designation only carried

*1:Lot indication

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.

This catalog provides information as of October, 2012. Specifications and information herein are subject to change without notice.