Ordering number : ENA1317A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

ATP202 — General-Purpose Switching Device Applications

Features

- Low ON-resistance
- 4.5V drive
- Halogen free compliance
- Large current
- Slim package
- Protection diode in

Specifications

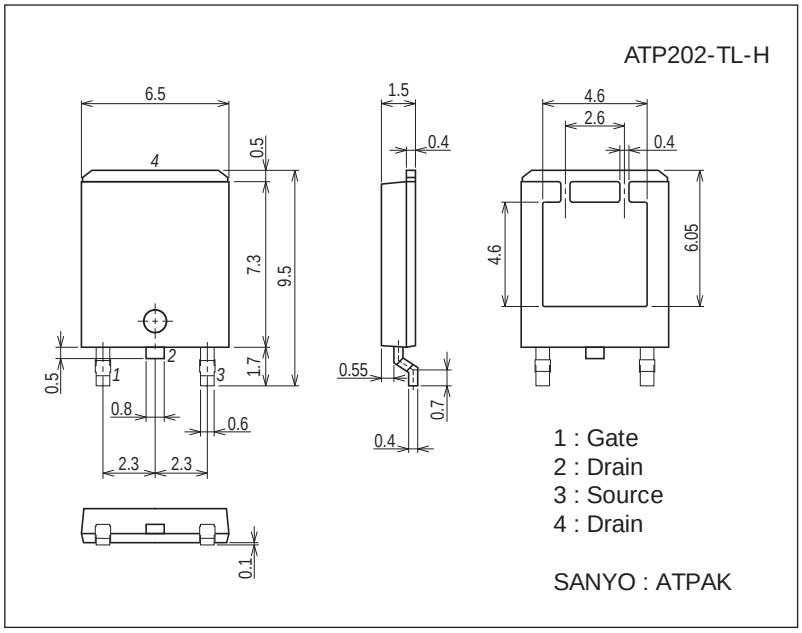
Absolute Maximum Ratings at Ta=25°C

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		50	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	150	A
Allowable Power Dissipation	P_D	Tc=25°C	40	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		45	mJ
Avalanche Current *2	I_{AV}		25	A

Note :*1 V_{DD}=10V, L=100μH, I_{AV}=25A
*2 L≤100μH, Single pulse

Package Dimensions

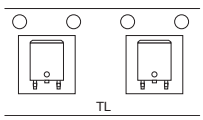
unit : mm (typ)
7057-001



Product & Package Information

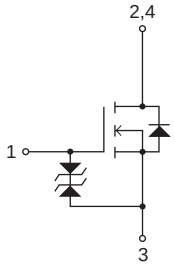
- Package : ATPAK
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

Packing Type: TL



Marking

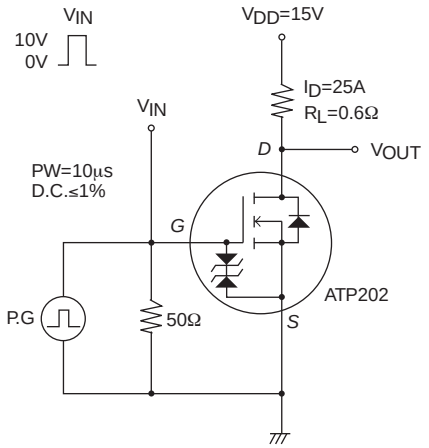
Electrical Connection



Electrical Characteristics at Ta=25°C

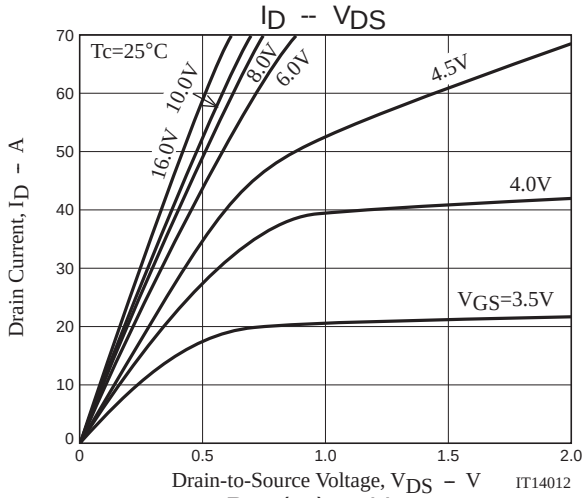
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=25A	10	17		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=25A, V_{GS}=10V		9	12	mΩ
	R_{DS}(on)2	I_D=13A, V_{GS}=4.5V		14	20	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1650		pF
Output Capacitance	Coss			285		pF
Reverse Transfer Capacitance	Crss			160		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		16		ns
Rise Time	t_r			185		ns
Turn-OFF Delay Time	t_d(off)			93		ns
Fall Time	t_f			93		ns
Total Gate Charge	Qg	V_{DS}=15V, V_{GS}=10V, I_D=50A		27		nC
Gate-to-Source Charge	Qgs			7.5		nC
Gate-to-Drain “Miller” Charge	Qgd			4		nC
Diode Forward Voltage	V_{SD}	I_S=50A, V_{GS}=0V		0.97	1.2	V

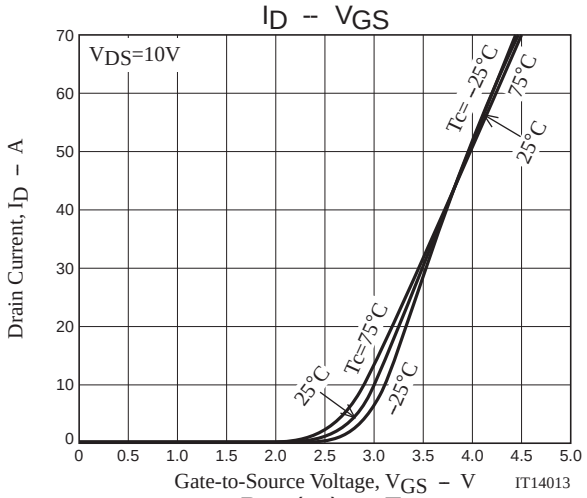
Switching Time Test Circuit

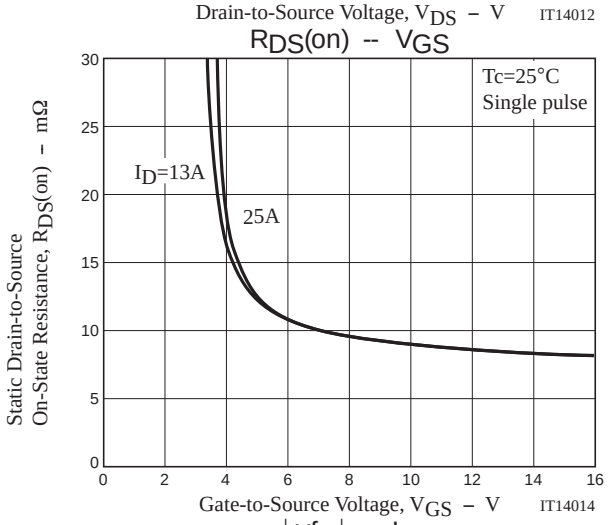


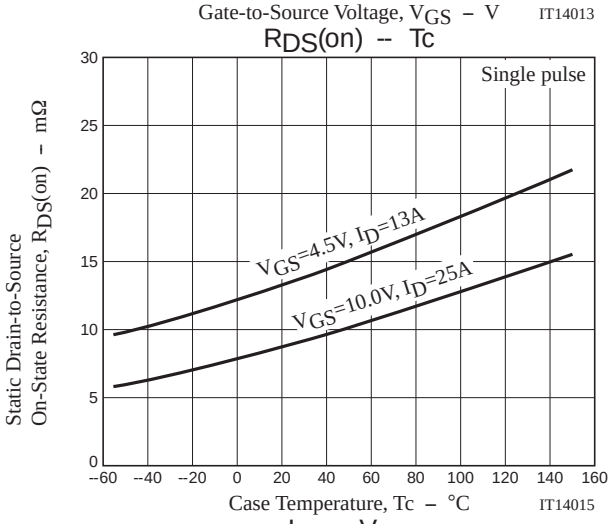
Ordering Information

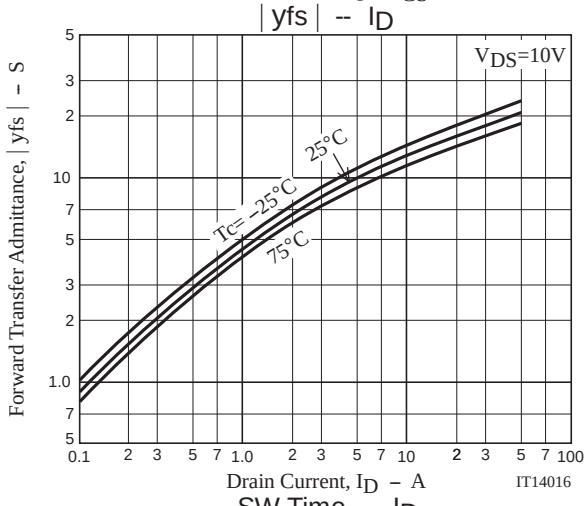
Device	Package	Shipping	memo
ATP202-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free

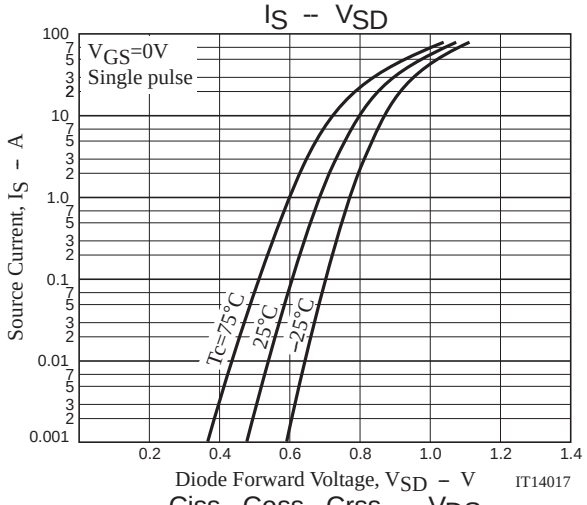

ID -- VDS
Tc=25°C
10.0V
8.0V
6.0V
4.5V
16.0V
4.0V
VGS=3.5V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14012

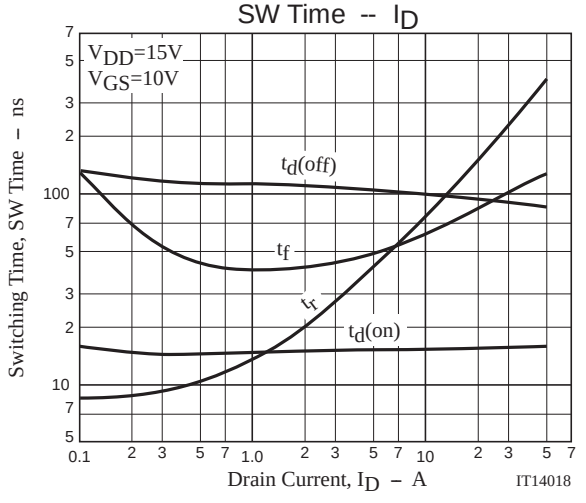

ID -- VGS
VDS=10V
Tc=–25°C
75°C
25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT14013

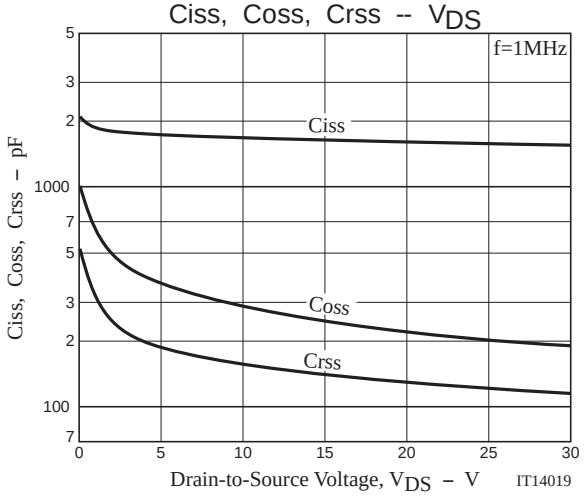

RDS(on) -- VGS
Tc=25°C
Single pulse
ID=13A
25A
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT14014

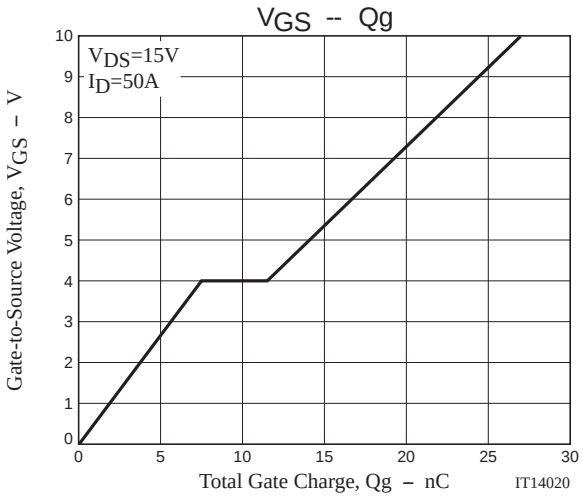

RDS(on) -- Tc
Single pulse
VGS=4.5V, ID=13A
VGS=10.0V, ID=25A
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT14015

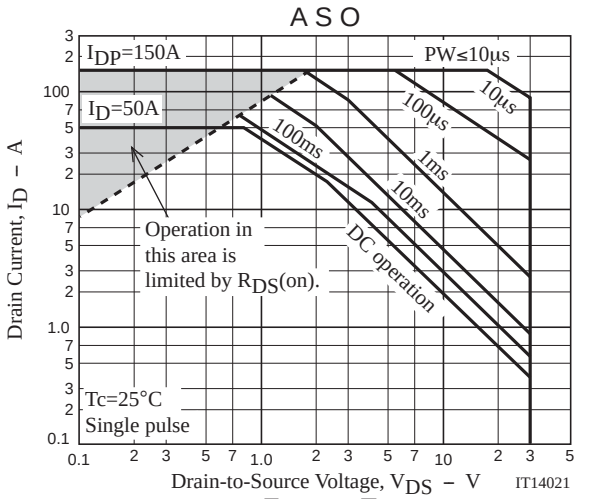

| yfs | -- ID
VDS=10V
25°C
Tc=–25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14016

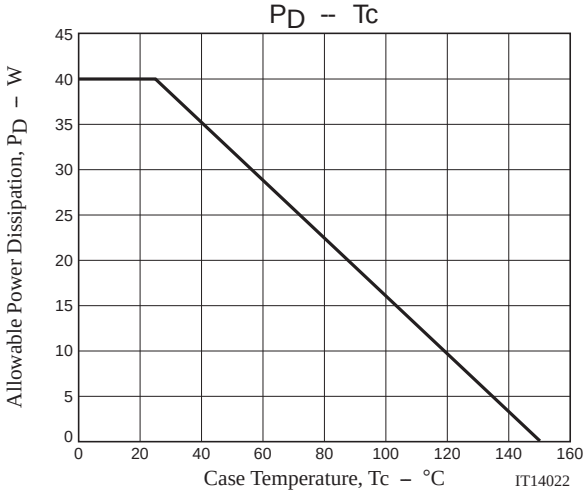

IS -- VSD
VGS=0V
Single pulse
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14017

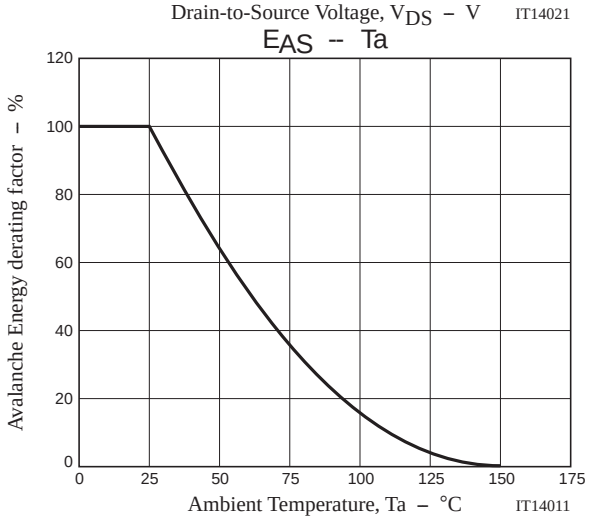

SW Time -- ID
VDD=15V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT14018


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT14019


VGS -- Qg
VDS=15V
ID=50A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT14020


A S O
IDP=150A
PW≤10μs
ID=50A
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
IT14021


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT14022


EAS -- Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT14011

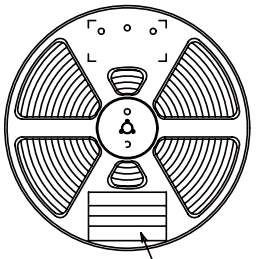
Taping Specification

ATP202-TL-H

1. Packing Format (TL)

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

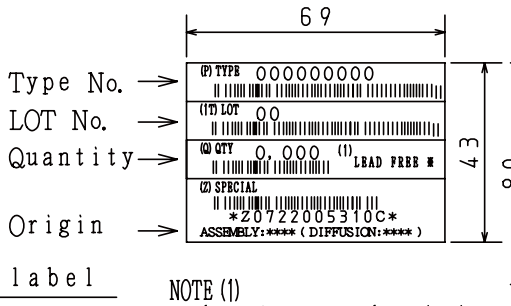
Packing method



Reel label

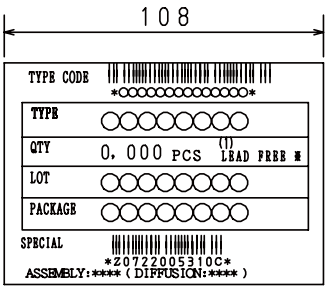
Reel label, Inner box label

(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.



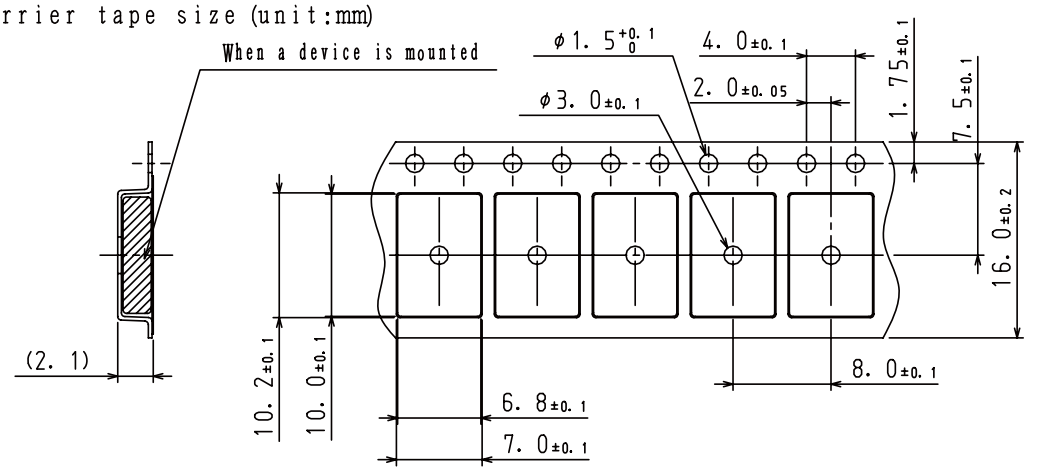
NOTE (1)

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

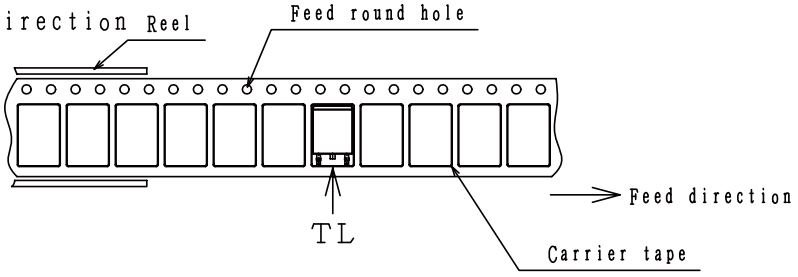
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



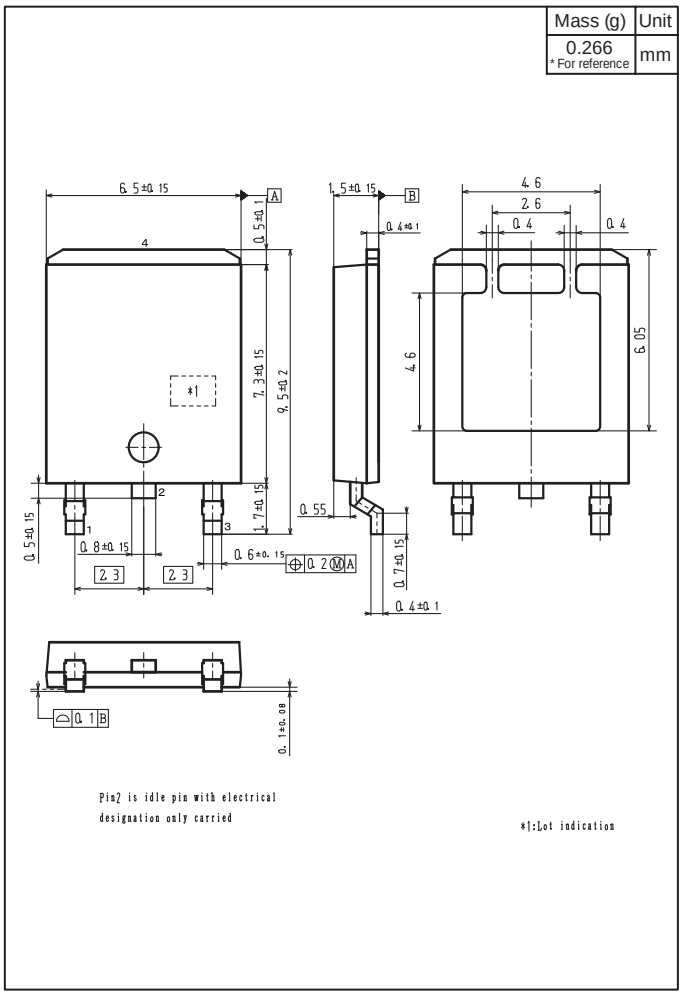
2-2. Device placement direction



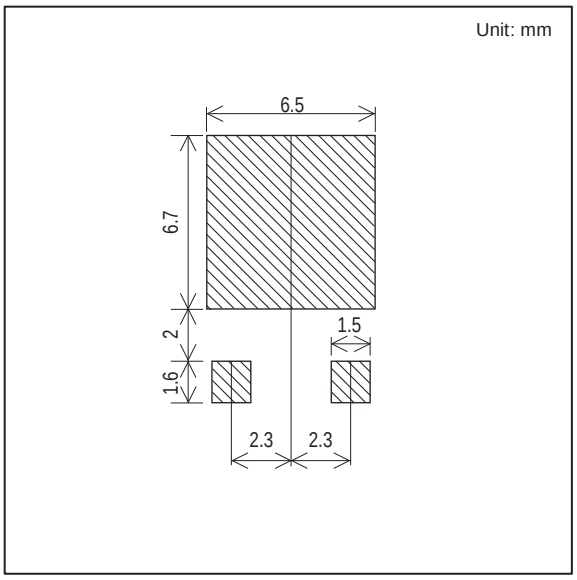
The one erectrode terminals on feed hole side····TL

Outline Drawing

ATP202-TL-H



Land Pattern Example



Note on usage : Since the ATP202 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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