Ordering number : ENA1317A

ATP202

N-Channel Power MOSFET
30V, 50A, 12mΩ, Single ATPAK

ON Semiconductor®
http://onsemi.com

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

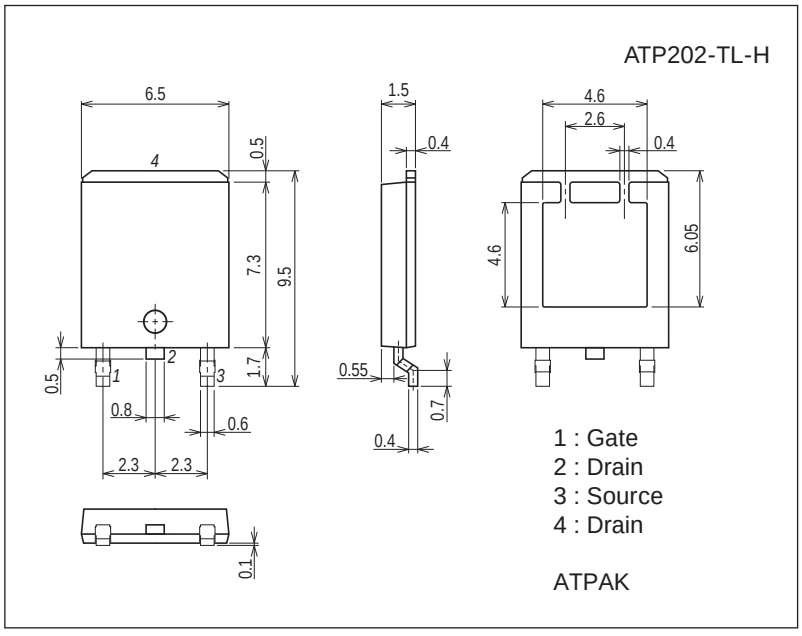
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		50	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	150	A
Allowable Power Dissipation	P_D	Tc=25°C	40	W
Channel Temperature	Tch		150	°C
Storage Temperature	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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

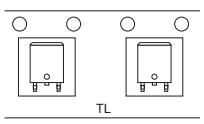
unit : mm (typ)
7057-001



Product & Package Information

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

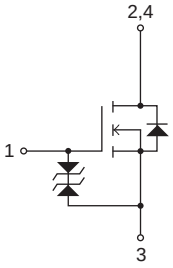
Packing Type: TL



Marking



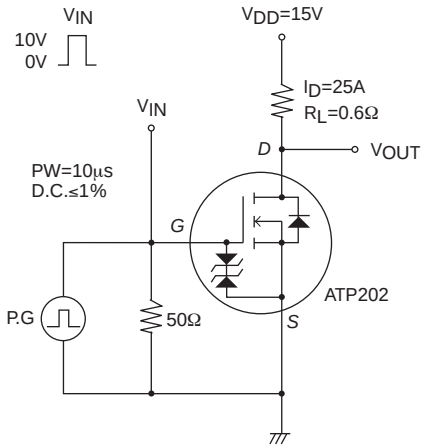
Electrical Connection



Electrical Characteristics at Ta=25°C

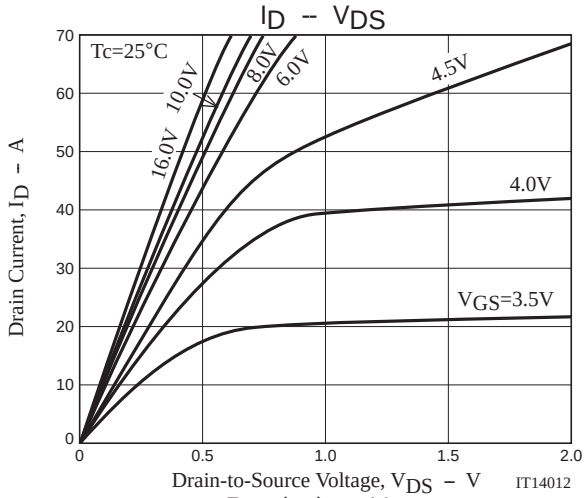
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, 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

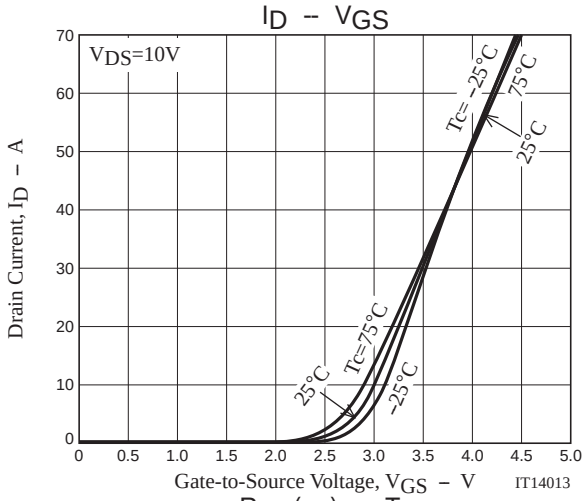
Switching Time Test Circuit

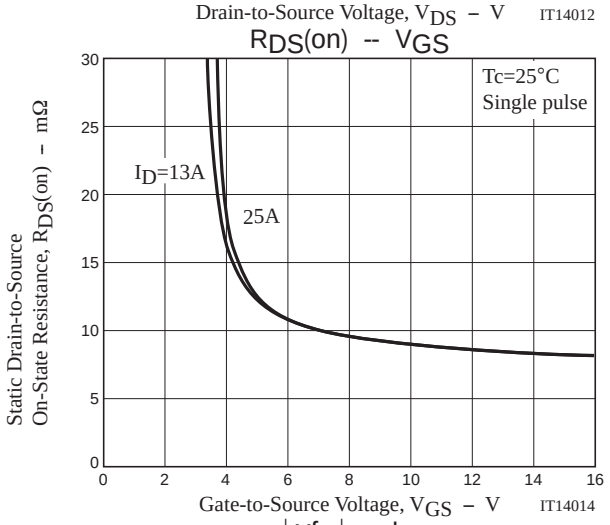


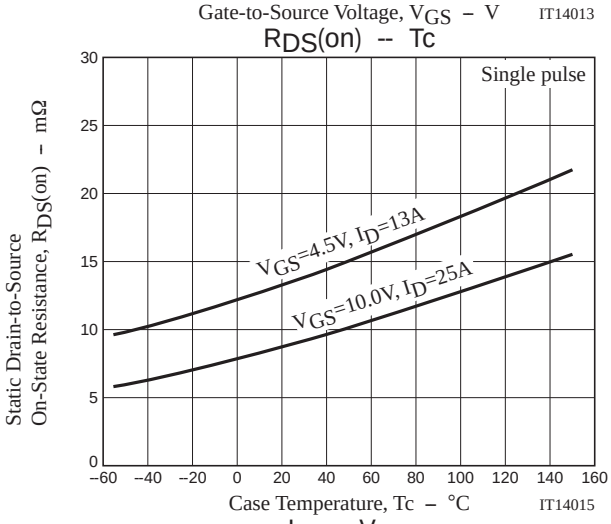
Ordering Information

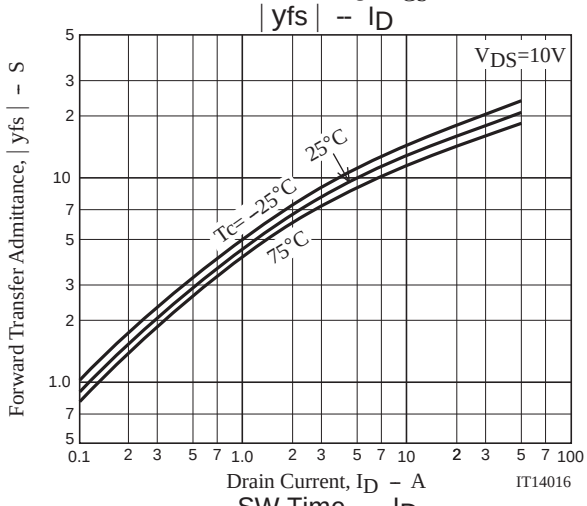
Device	Package	Shipping	memo
ATP202-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free

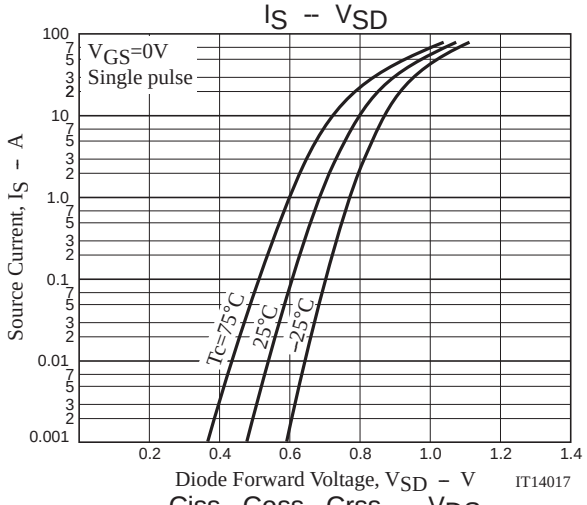

ID -- VDS
Tc=25°C
10.0V
8.0V
6.0V
4.5V
16.0V
4.0V
VGS=3.5V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14012

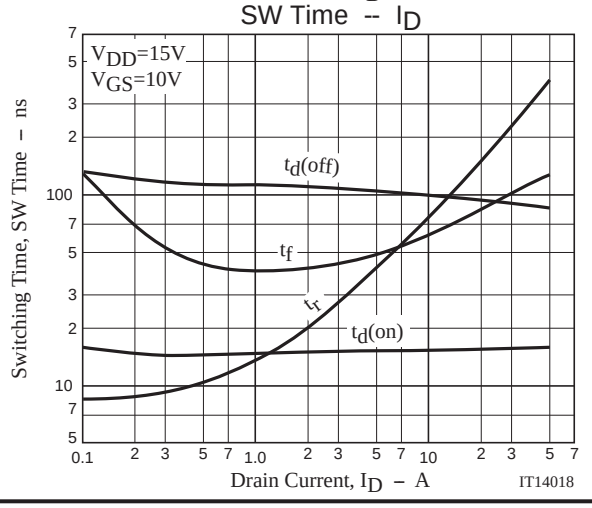

ID -- VGS
VDS=10V
Tc=–25°C
75°C
25°C
Tc=75°C
25°C
–25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT14013

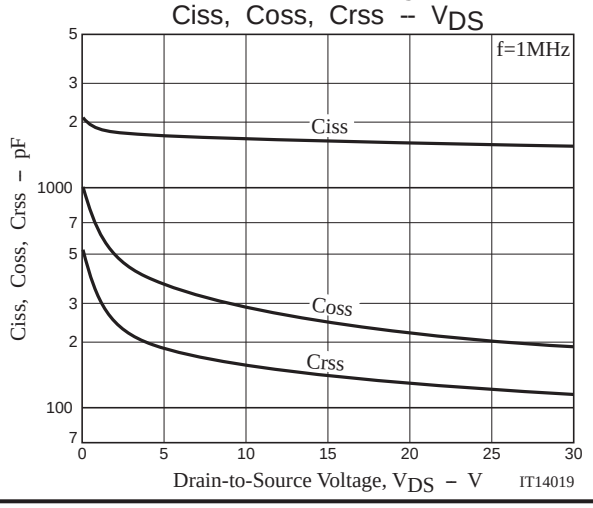

RDS(on) -- VGS
Tc=25°C
Single pulse
ID=13A
25A
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT14014

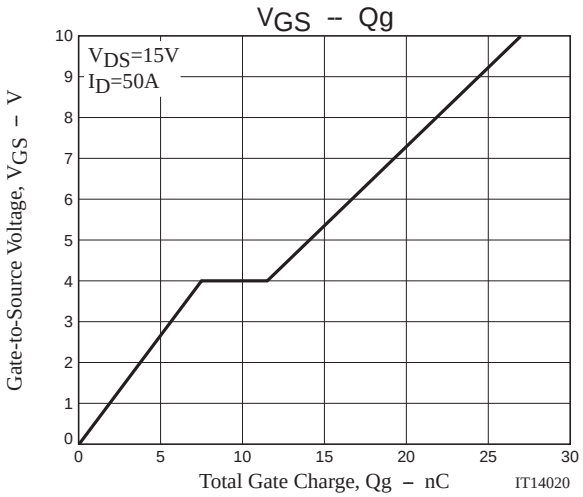

RDS(on) -- Tc
Single pulse
VGS=4.5V, ID=13A
VGS=10.0V, ID=25A
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT14015

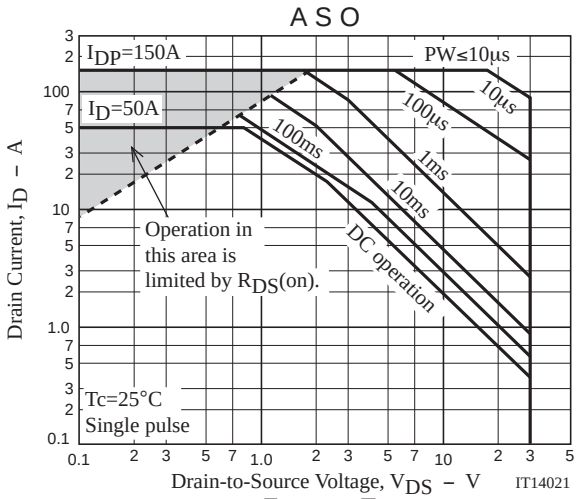

| yfs | -- ID
VDS=10V
25°C
Tc=–25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14016

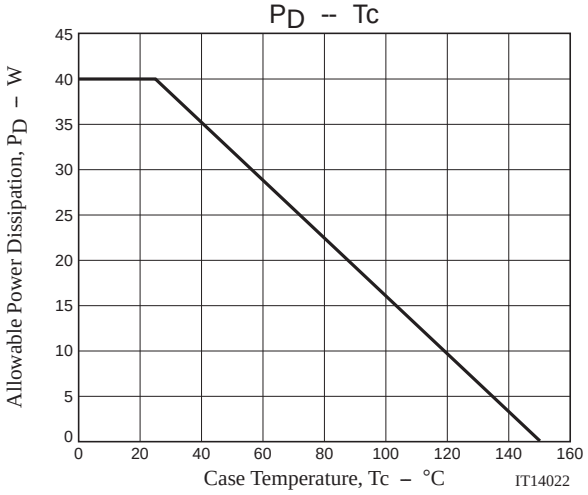

IS -- VSD
VGS=0V
Single pulse
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14017

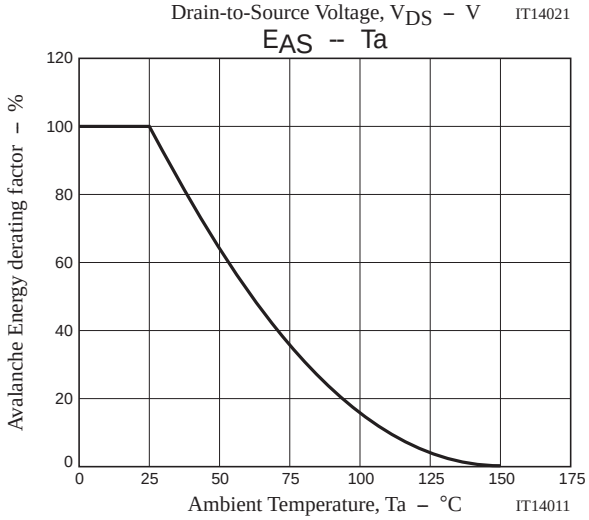

SW Time -- ID
VDD=15V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT14018


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
100ms
1ms
10ms
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

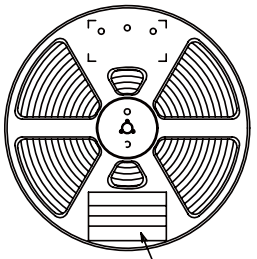
Taping Specification

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

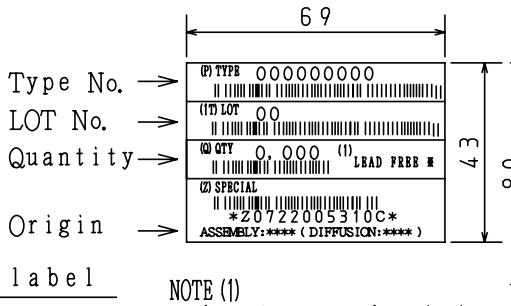
Packing method



Reel label

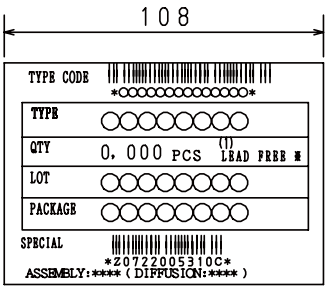
Reel label, Inner box label

(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.



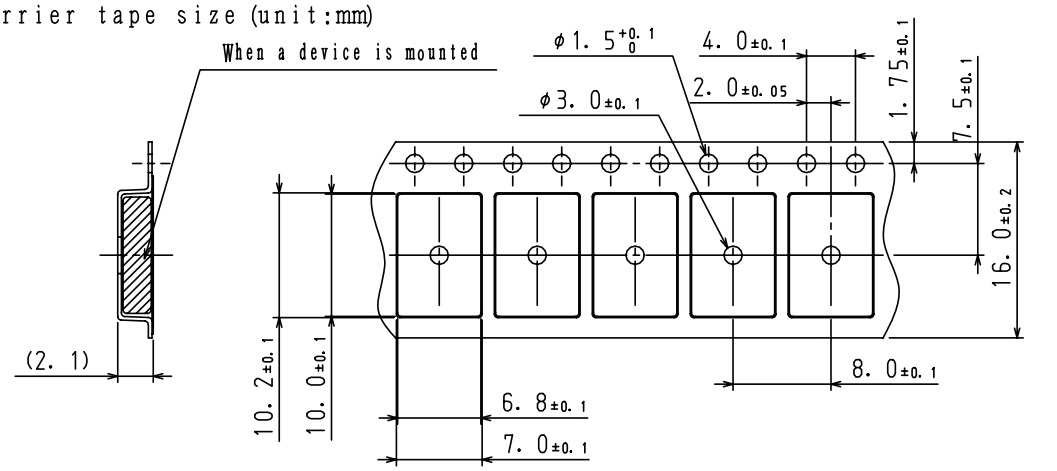
NOTE (1)

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

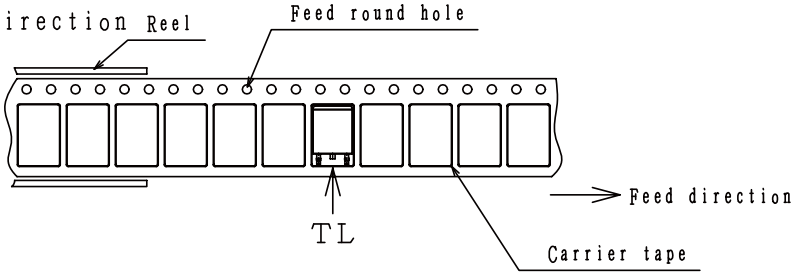
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



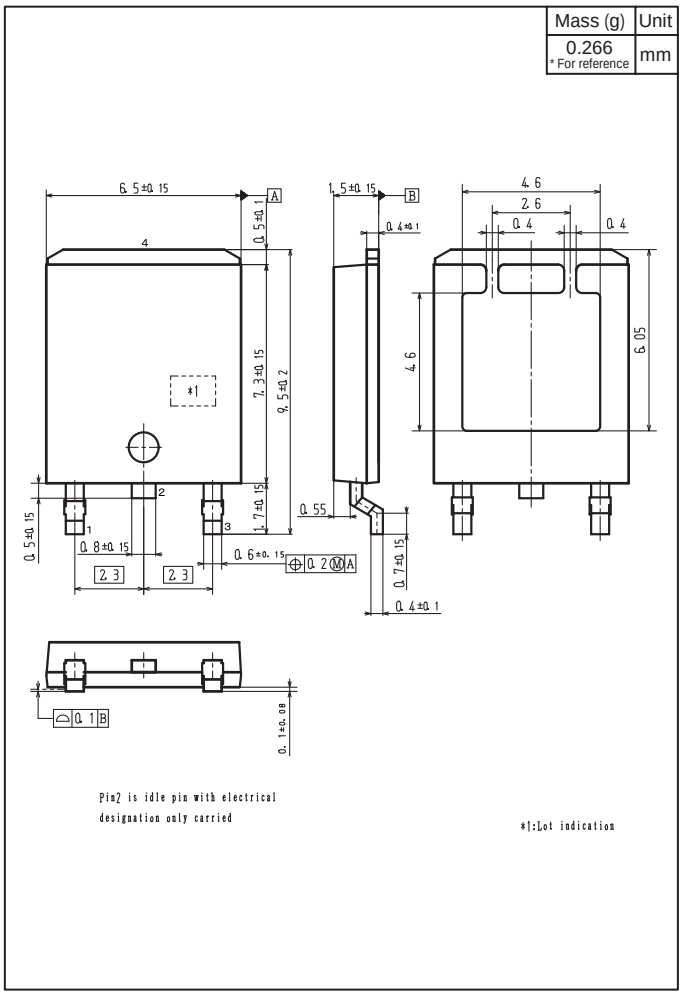
2-2. Device placement direction



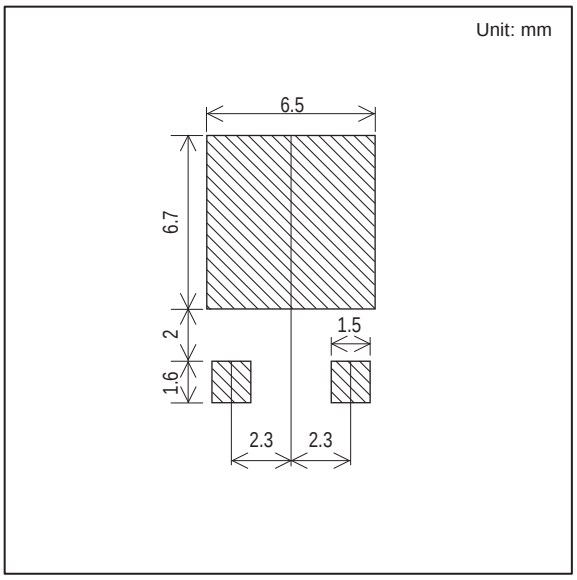
The one erectrode terminals on feed hole side····TL

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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