Ordering number : ENA1319A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

ATP207 — General-Purpose Switching Device Applications

Features

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

Specifications

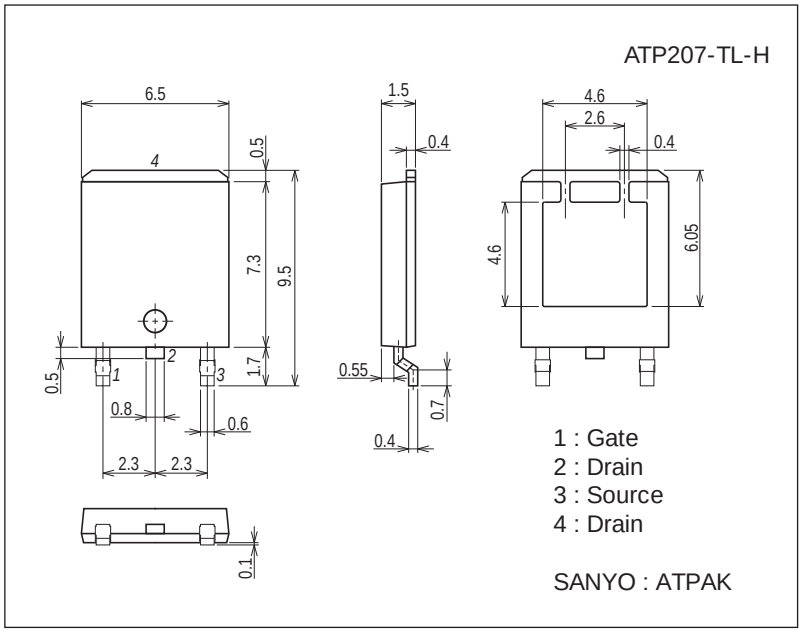
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		40	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		65	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	195	A
Allowable Power Dissipation	P_D	Tc=25°C	50	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		35	mJ
Avalanche Current *2	I_{AV}		33	A

Note :*1 V_{DD}=10V, L=50μH, I_{AV}=33A
*2 L≤50μH, Single pulse

Package Dimensions

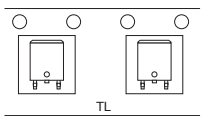
unit : mm (typ)
7057-001



Product & Package Information

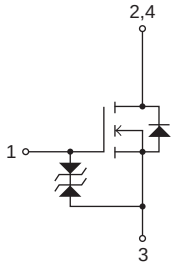
- Package : ATPAK
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

Packing Type: TL



Marking

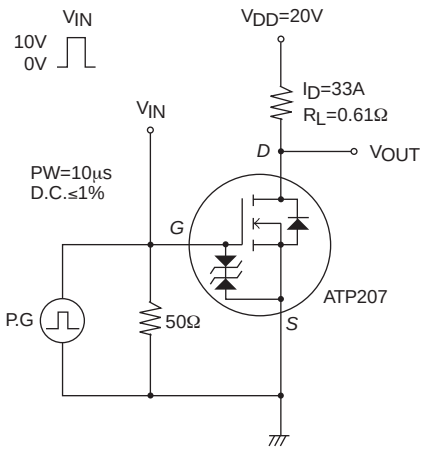
Electrical Connection



Electrical Characteristics at Ta=25°C

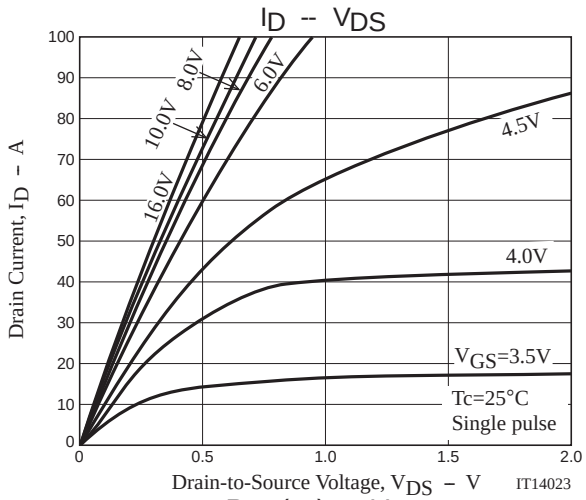
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	40			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.5		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=33A	12	20		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=33A, V_{GS}=10V		7	9.1	mΩ
	R_{DS}(on)2	I_D=17A, V_{GS}=4.5V		11	15.5	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		2710		pF
Output Capacitance	Coss			330		pF
Reverse Transfer Capacitance	Crss			220		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		27		ns
Rise Time	t_r			290		ns
Turn-OFF Delay Time	t_d(off)			170		ns
Fall Time	t_f			110		ns
Total Gate Charge	Qg	V_{DS}=20V, V_{GS}=10V, I_D=65A		54		nC
Gate-to-Source Charge	Qgs			14		nC
Gate-to-Drain “Miller” Charge	Qgd			11		nC
Diode Forward Voltage	V_{SD}	I_S=65A, V_{GS}=0V		1.0	1.2	V

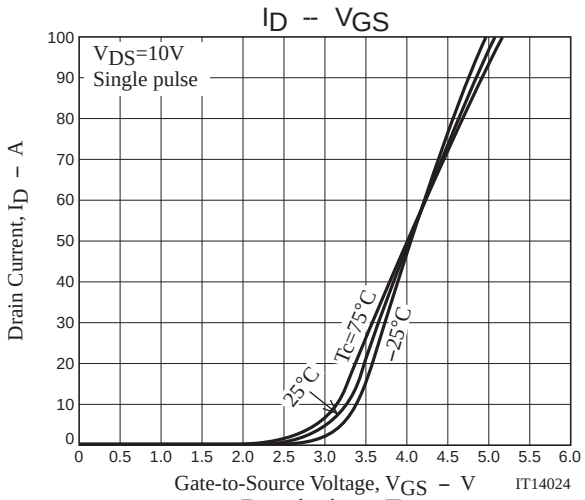
Switching Time Test Circuit

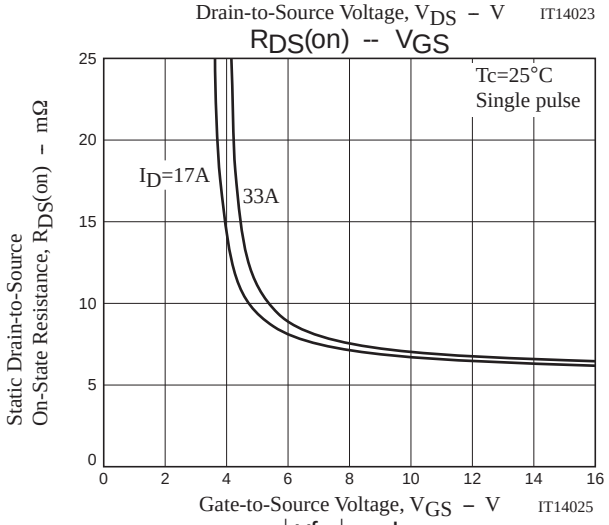


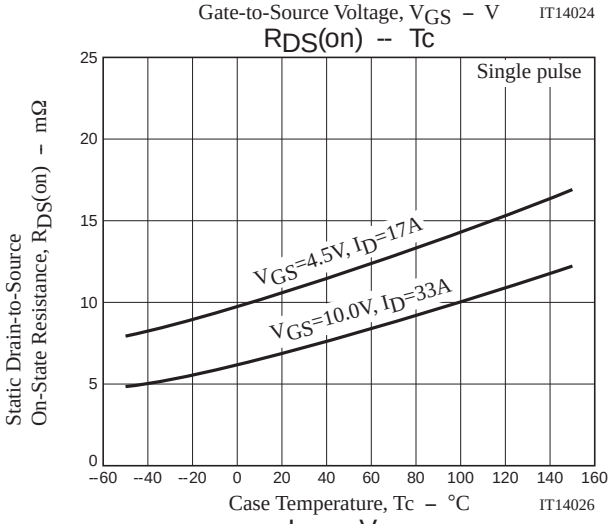
Ordering Information

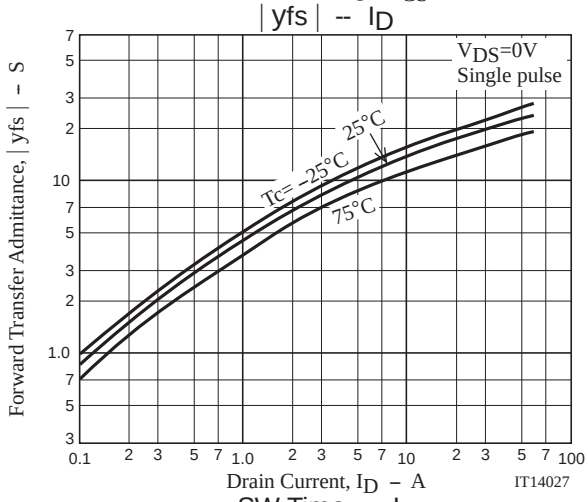
Device	Package	Shipping	memo
ATP207-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free

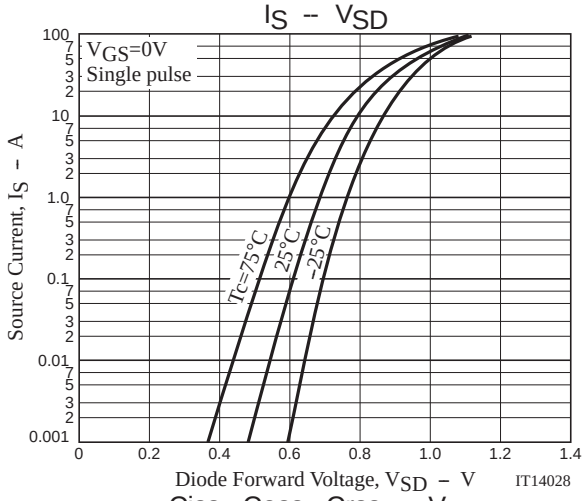

ID -- VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14023
10.0V
8.0V
6.0V
16.0V
4.5V
4.0V
VGS=3.5V
Tc=25°C
Single pulse

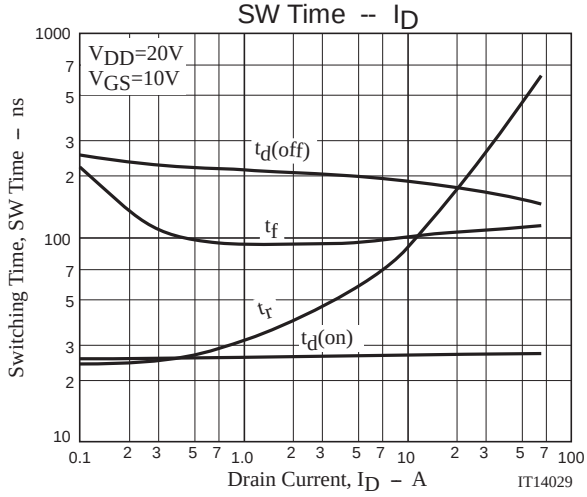

ID -- VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT14024
VDS=10V
Single pulse
Tc=75°C
25°C
–25°C

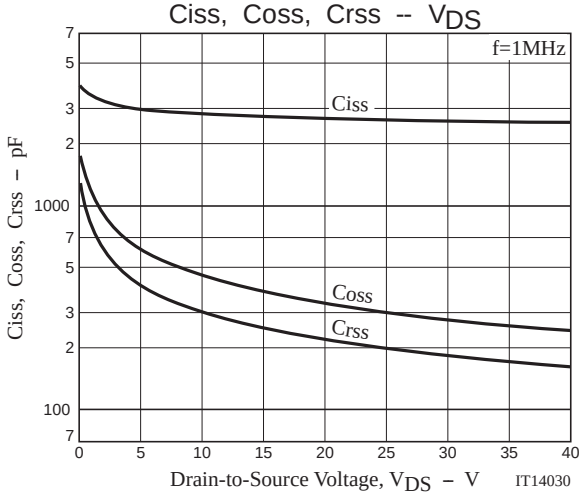

RDS(on) -- VGS
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT14025
Tc=25°C
Single pulse
ID=17A
33A

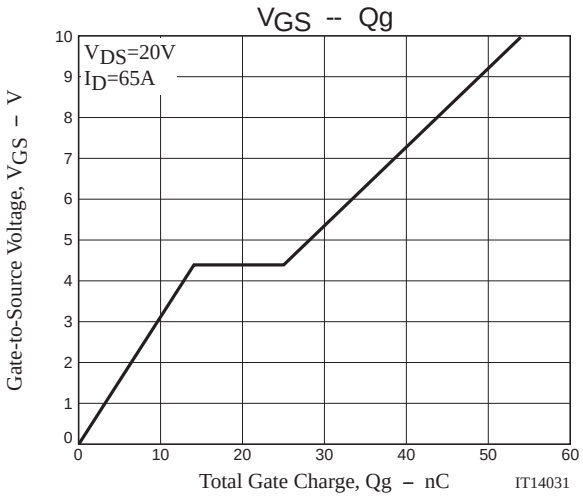

RDS(on) -- Tc
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT14026
Single pulse
VGS=4.5V, ID=17A
VGS=10.0V, ID=33A

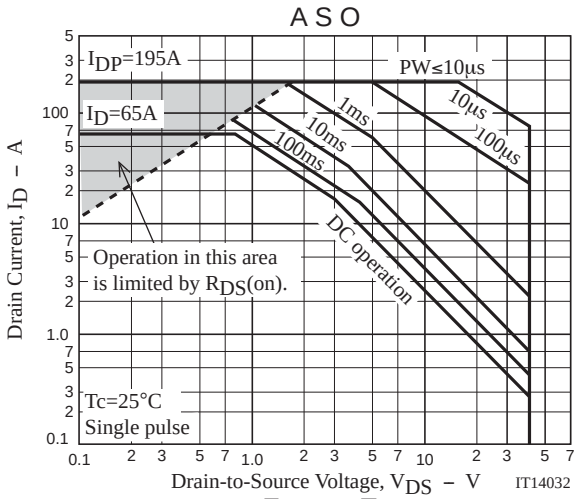

| yfs | -- ID
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14027
VDS=0V
Single pulse
Tc= –25°C
25°C
75°C

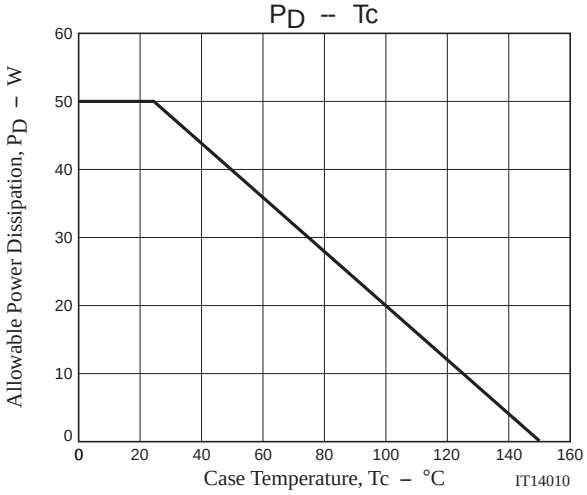

IS -- VSD
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14028
VGS=0V
Single pulse
Tc=75°C
25°C
–25°C

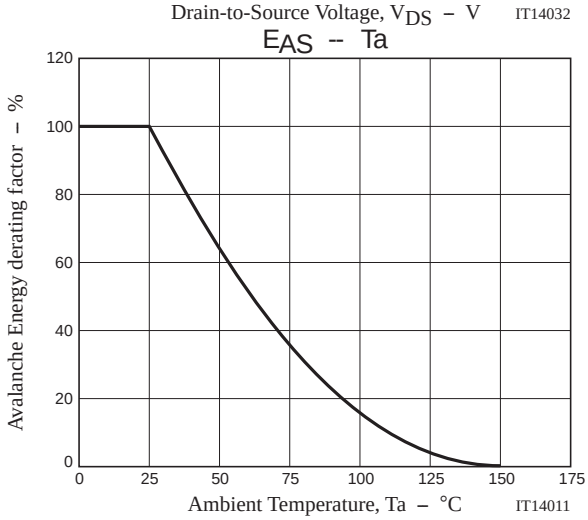

SW Time -- ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT14029
VDD=20V
VGS=10V
td(off)
tf
tr
td(on)


Ciss, Coss, Crss -- VDS
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT14030
f=1MHz
Ciss
Coss
Crss


VGS -- Qg
VDS=20V
ID=65A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT14031


A S O
IDP=195A
PW≤10μs
ID=65A
1ms
10ms
100ms
10μs
100μs
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
IT14032


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT14010


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

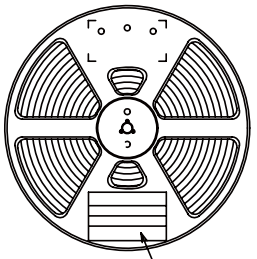
Taping Specification

ATP207-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

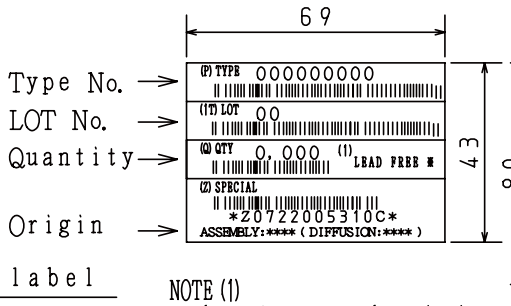
Packing method



Reel label

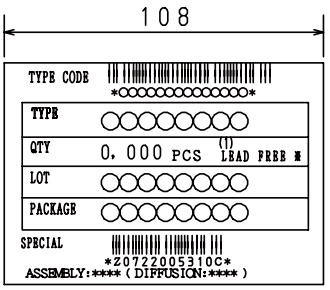
Reel label, Inner box label

(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.



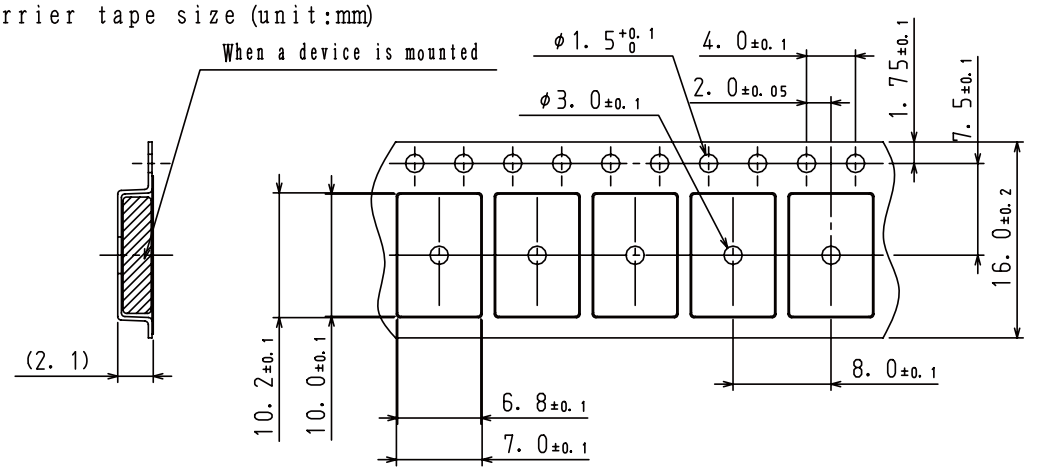
NOTE (1)

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

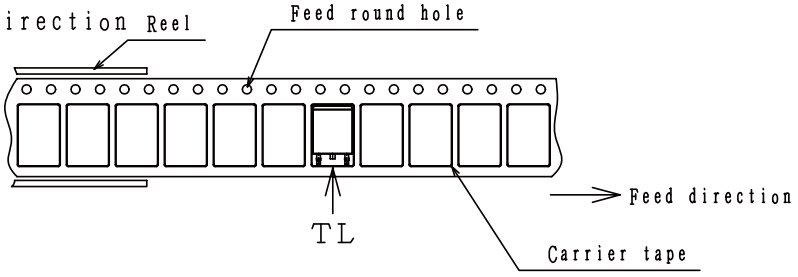
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



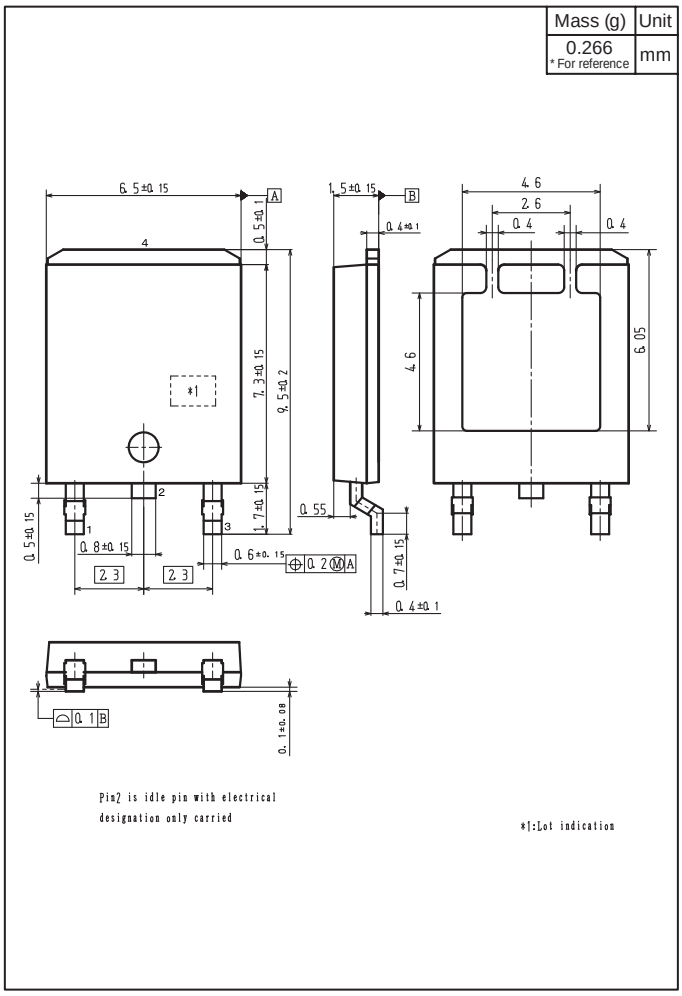
2-2. Device placement direction



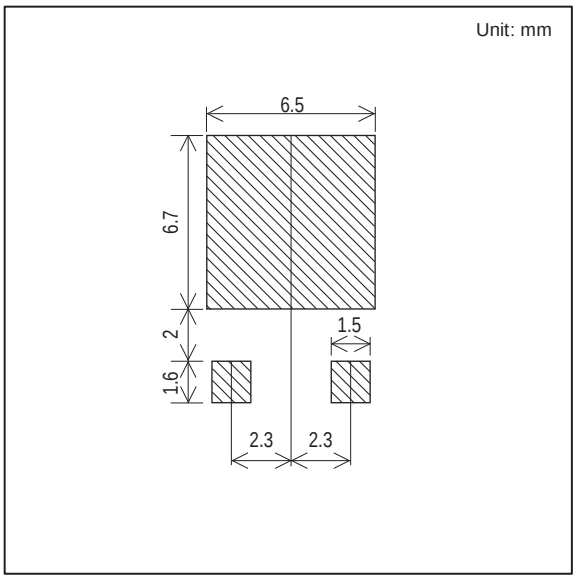
The one erectrode terminals on feed hole side····TL

Outline Drawing

ATP207-TL-H



Land Pattern Example



Note on usage : Since the ATP207 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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