Ordering number : ENA1396A

ATP208

N-Channel Power MOSFET
40V, 90A, 6mΩ, 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

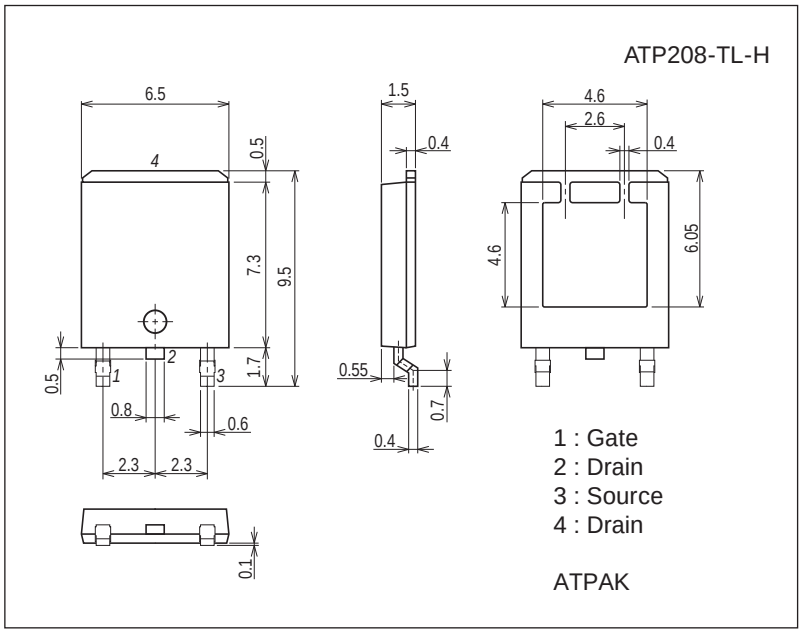
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		40	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		90	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	270	A
Allowable Power Dissipation	P_D	Tc=25°C	60	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		155	mJ
Avalanche Current *2	I_{AV}		45	A

Note :*1 V_{DD}=15V, L=100μH, I_{AV}=45A
*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

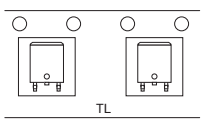
unit : mm (typ)
7057-001



Product & Package Information

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

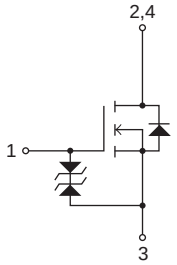
Packing Type: TL



Marking



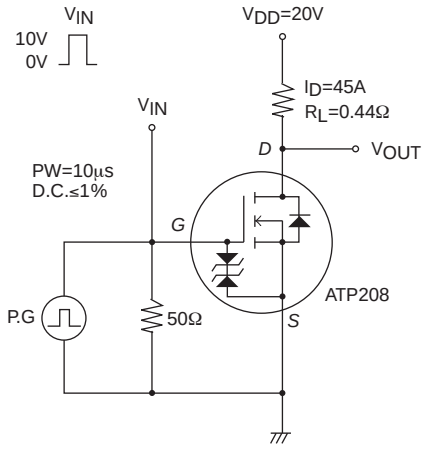
Electrical Connection



Electrical Characteristics at Ta=25°C

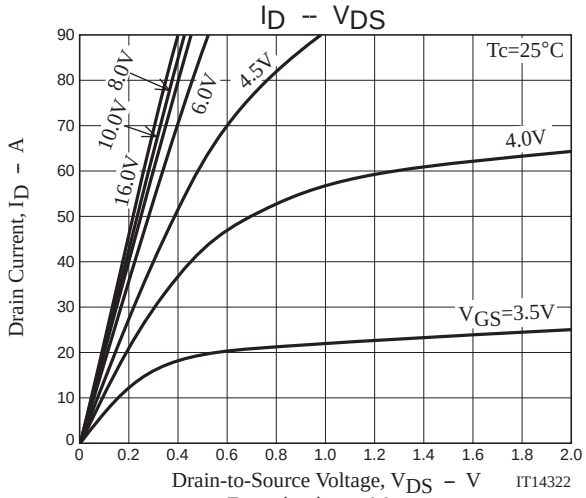
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	40			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.5		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=45A	16	28		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=45A, V_{GS}=10V		4.6	6.0	mΩ
	R_{DS}(on)2	I_D=23A, V_{GS}=4.5V		7	9.8	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		4510		pF
Output Capacitance	Coss			535		pF
Reverse Transfer Capacitance	Crss			385		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		35		ns
Rise Time	t_r			400		ns
Turn-OFF Delay Time	t_d(off)			280		ns
Fall Time	t_f			200		ns
Total Gate Charge	Qg	V_{DS}=20V, V_{GS}=10V, I_D=90A		83		nC
Gate-to-Source Charge	Qgs			19		nC
Gate-to-Drain “Miller” Charge	Qgd			17		nC
Diode Forward Voltage	V_{SD}	I_S=90A, V_{GS}=0V		1.0	1.2	V

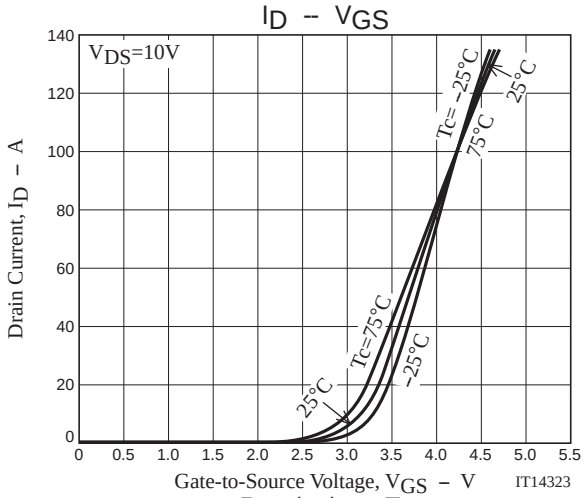
Switching Time Test Circuit

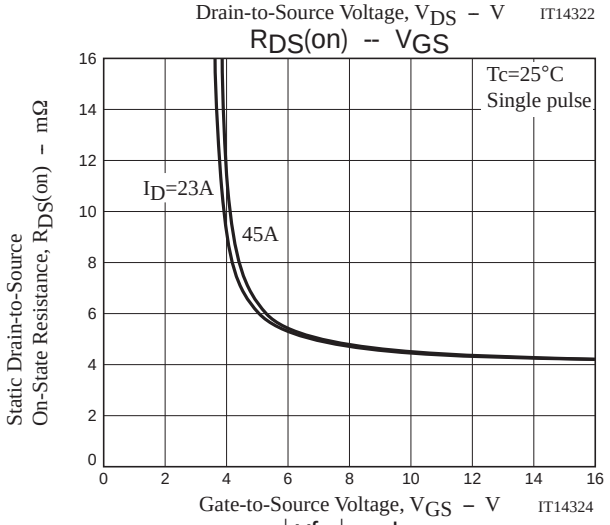


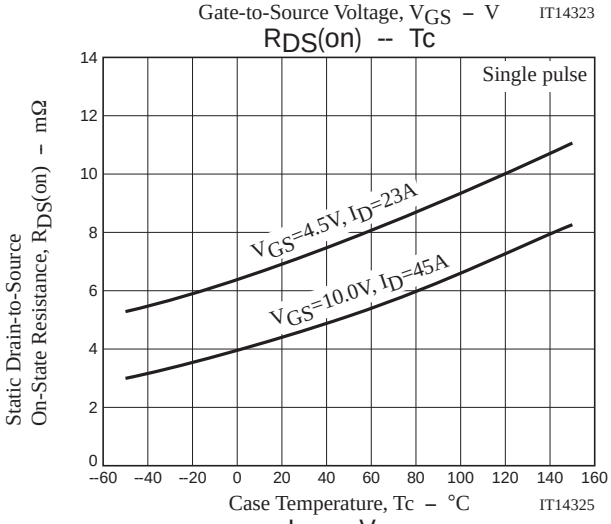
Ordering Information

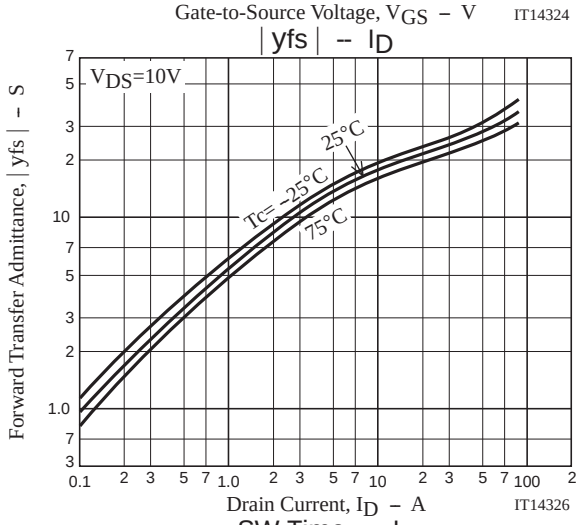
Device	Package	Shipping	memo
ATP208-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free

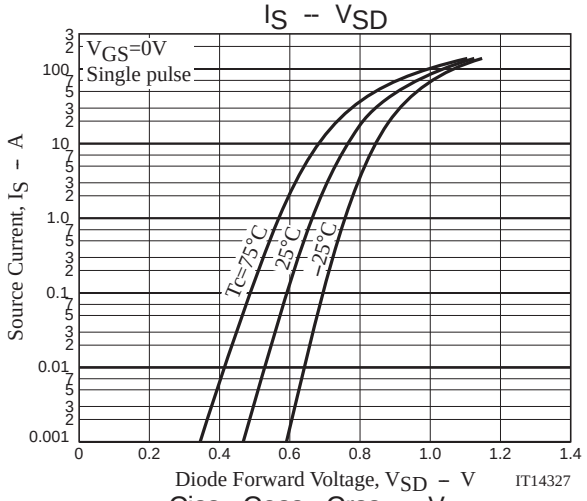

I_D -- V_{DS}
Tc=25°C
8.0V
10.0V
16.0V
6.0V
4.5V
4.0V
V_{GS}=3.5V
Drain Current, I_D – A
Drain-to-Source Voltage, V_{DS} – V
IT14322

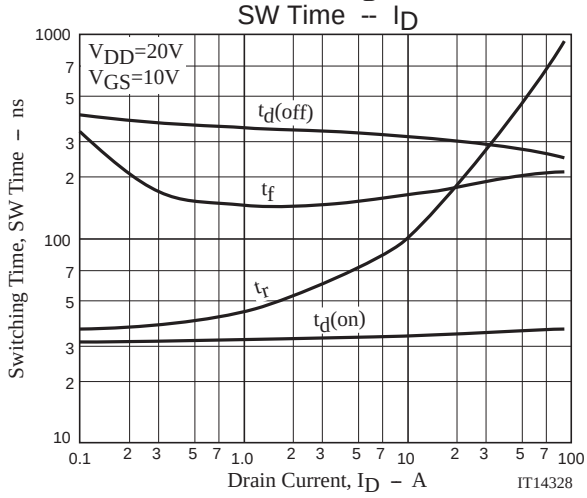

I_D -- V_{GS}
V_{DS}=10V
Tc= –25°C
25°C
75°C
Tc=75°C
–25°C
25°C
Drain Current, I_D – A
Gate-to-Source Voltage, V_{GS} – V
IT14323

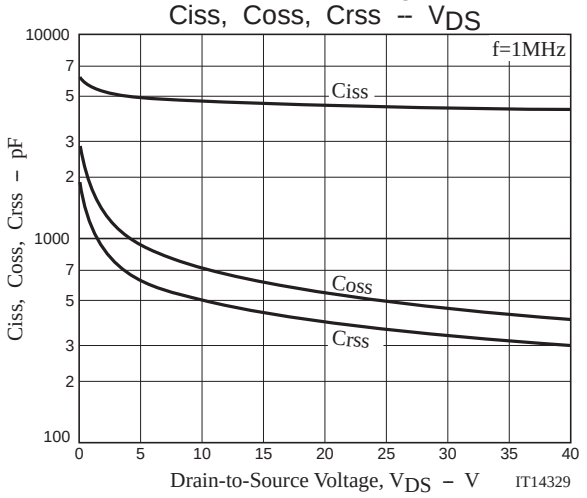

$R_{DS(on)}$ -- V_{GS}
Tc=25°C
Single pulse
I_D=23A
45A
Static Drain-to-Source On-State Resistance, $R_{DS(on)}$ – mΩ
Gate-to-Source Voltage, V_{GS} – V
IT14324

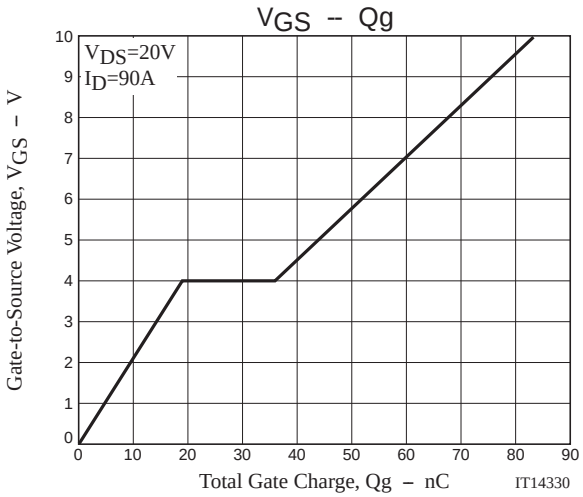

$R_{DS(on)}$ -- Tc
Single pulse
V_{GS}=4.5V, I_D=23A
V_{GS}=10.0V, I_D=45A
Static Drain-to-Source On-State Resistance, $R_{DS(on)}$ – mΩ
Case Temperature, Tc – °C
IT14325

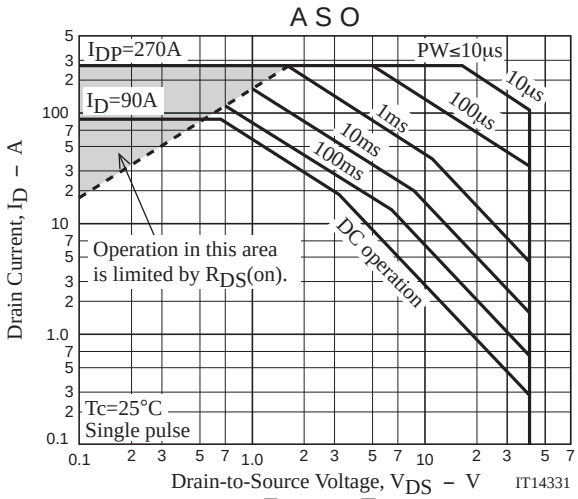

| yfs | -- I_D
V_{DS}=10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, I_D – A
IT14326

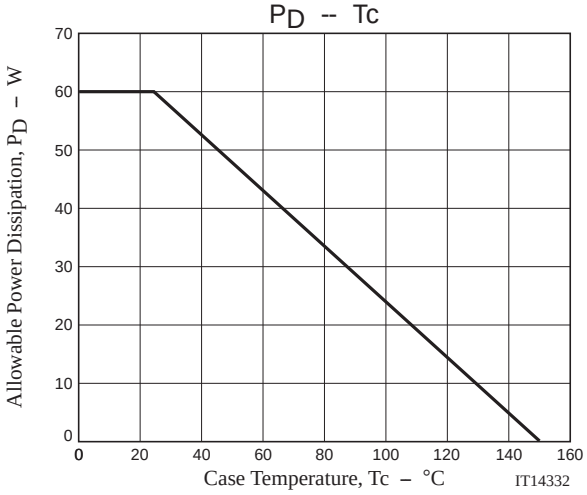

I_S -- V_{SD}
V_{GS}=0V
Single pulse
Tc=75°C
25°C
–25°C
Source Current, I_S – A
Diode Forward Voltage, V_{SD} – V
IT14327

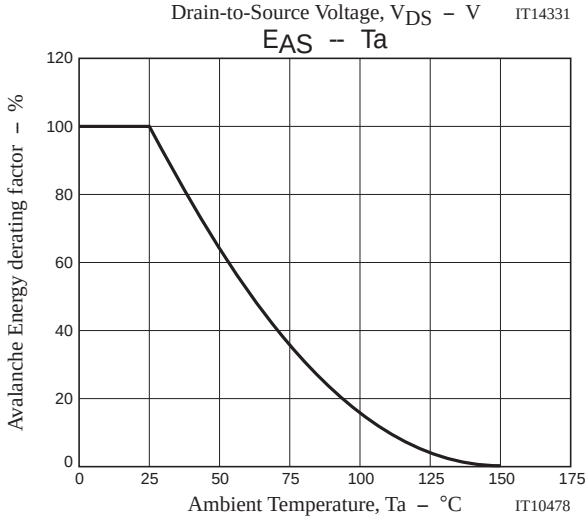

SW Time -- I_D
V_{DD}=20V
V_{GS}=10V
$t_{d(off)}$
t_f
t_r
$t_{d(on)}$
Switching Time, SW Time – ns
Drain Current, I_D – A
IT14328


Ciss, Coss, Crss -- V_{DS}
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, V_{DS} – V
IT14329


VGS – Qg
VDS=20V
ID=90A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT14330


A S O
IDP=270A
PW≤10μs
ID=90A
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
IT14331


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT14332


EAS -- Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT10478

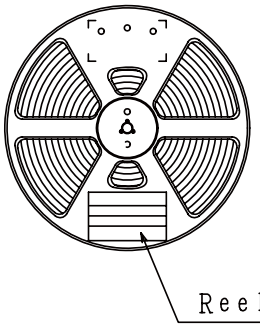
Taping Specification

ATP208-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

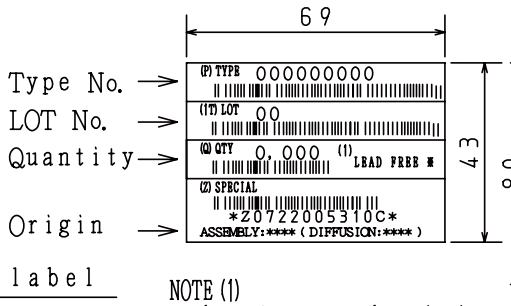
Packing method



Reel label

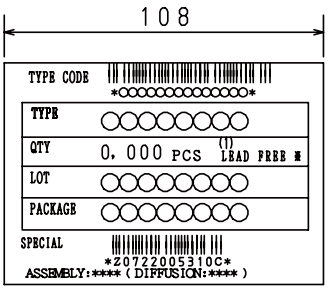
Reel label, Inner box label

(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.



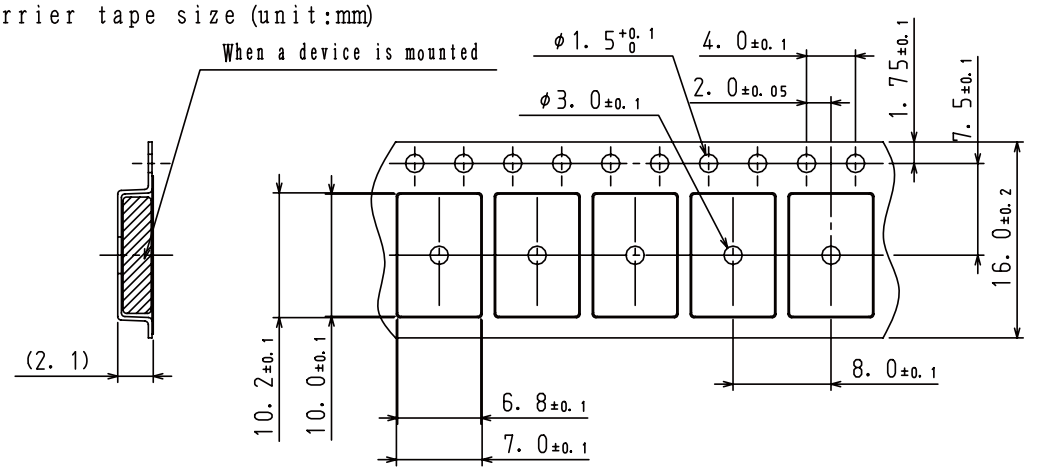
NOTE (1)

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

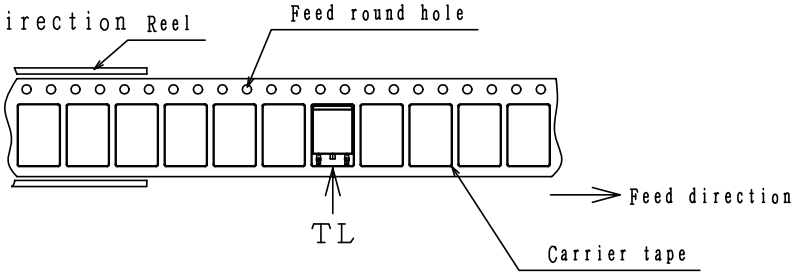
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



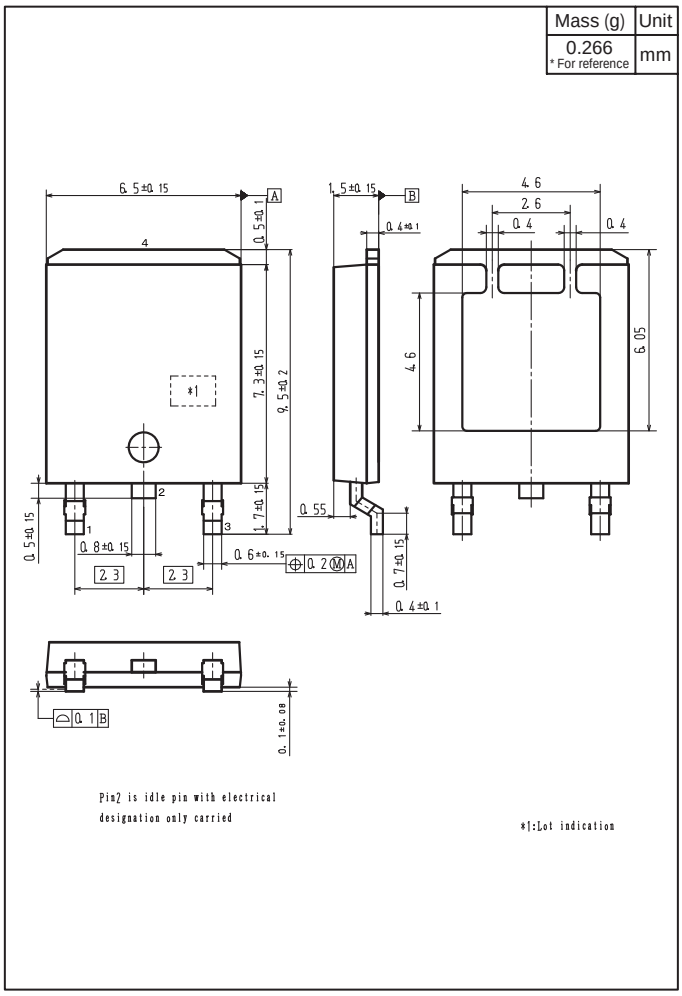
2-2. Device placement direction



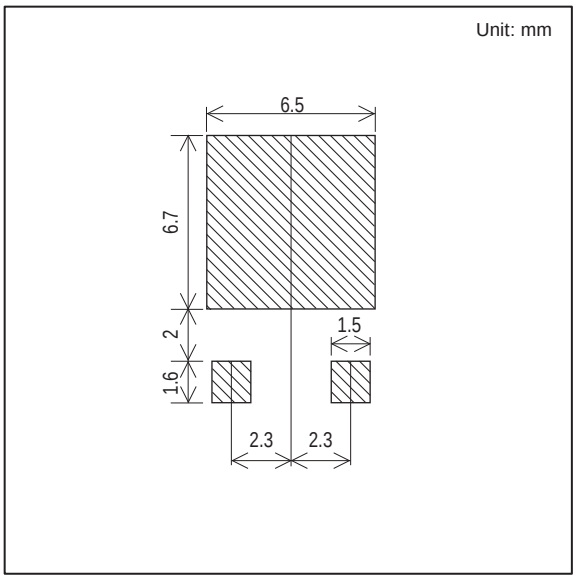
The one erectrode terminals on feed hole side····TL

Outline Drawing

ATP208-TL-H



Land Pattern Example



Note on usage : Since the ATP208 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

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