

ATP302 — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=10\text{m}\Omega$ (typ.)
- 4.5V drive
- Input capacitance $C_{iss}=5400\text{pF}$ (typ.)
- Halogen free compliance

Specifications

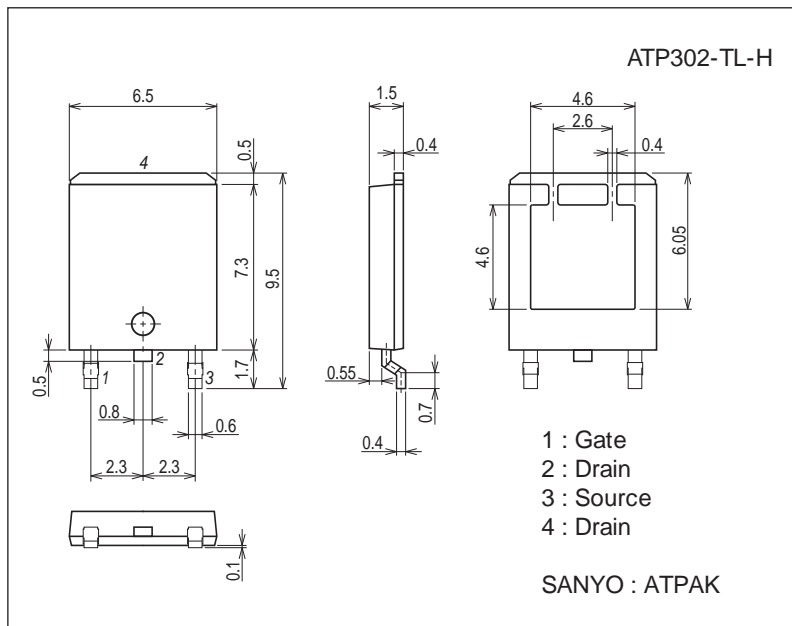
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-60	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		-70	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-280	A
Allowable Power Dissipation	P_D	$T_c=25^\circ\text{C}$	70	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		197	mJ
Avalanche Current *2	I_{AV}		-42	A

Note : *1 $V_{DD}=-36\text{V}$, $L=100\mu\text{H}$, $I_{AV}=-42\text{A}$
 *2 $L \leq 100\mu\text{H}$, Single pulse

Package Dimensions

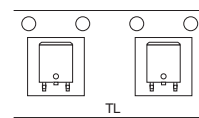
unit : mm (typ)
7057-001



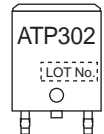
Product & Package Information

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

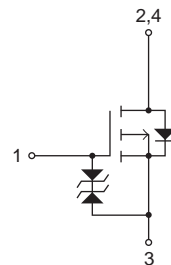
Packing Type: TL



Marking



Electrical Connection

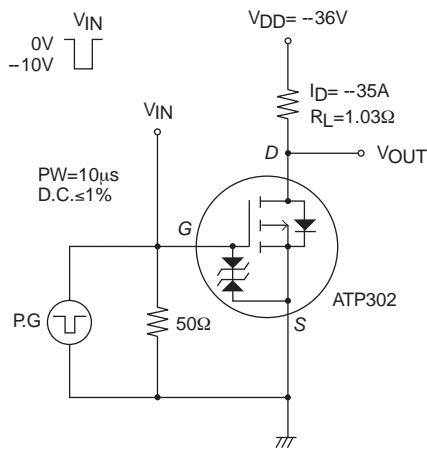


ATP302

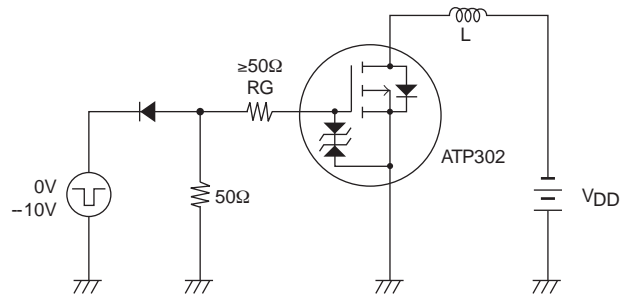
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}, V_{GS}=0\text{V}$	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60\text{V}, V_{GS}=0\text{V}$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10\text{V}, I_D=-1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}, I_D=-35\text{A}$		75		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-35\text{A}, V_{GS}=-10\text{V}$		10	13	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-35\text{A}, V_{GS}=-4.5\text{V}$		13	18	$\text{m}\Omega$
Input Capacitance	C_{iss}			5400		pF
Output Capacitance	C_{oss}	$V_{DS}=-20\text{V}, f=1\text{MHz}$		500		pF
Reverse Transfer Capacitance	C_{rss}			370		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		35		ns
Rise Time	t_r			430		ns
Turn-OFF Delay Time	$t_d(off)$			420		ns
Fall Time	t_f			500		ns
Total Gate Charge	Q_g				115	
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-36\text{V}, V_{GS}=-10\text{V}, I_D=-70\text{A}$		20		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			25		nC
Diode Forward Voltage	V_{SD}	$I_S=-70\text{A}, V_{GS}=0\text{V}$		-1.0	-1.5	V

Switching Time Test Circuit

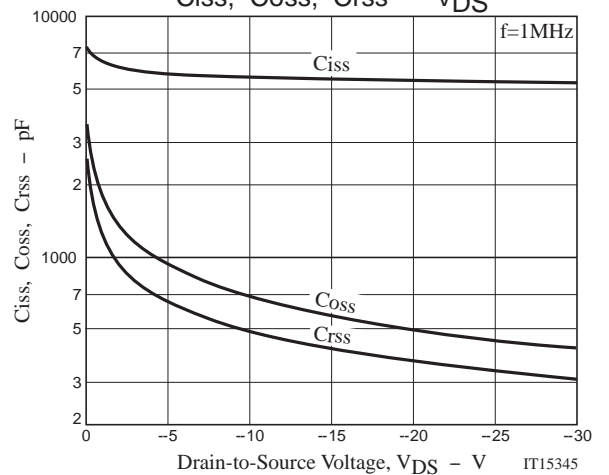
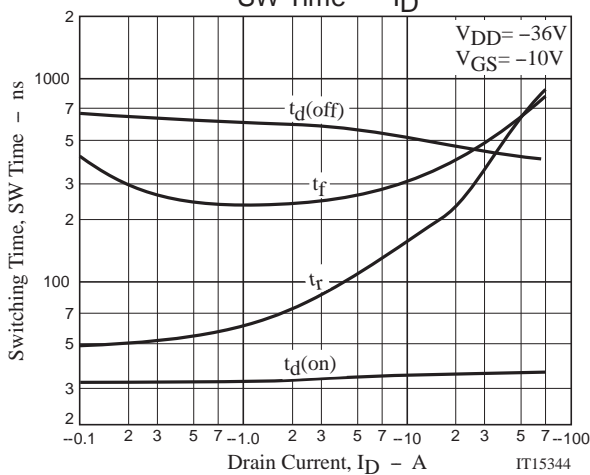
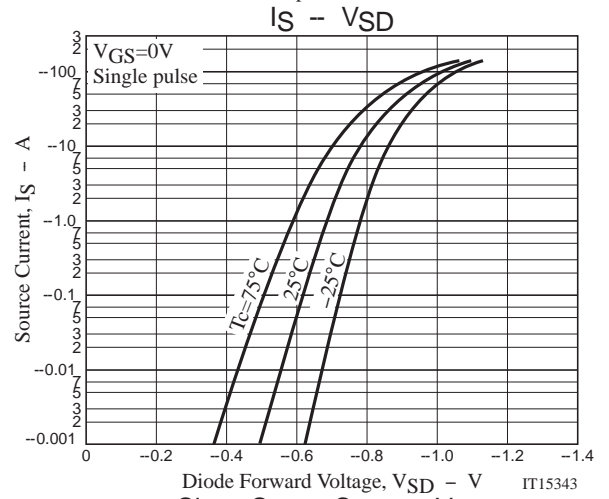
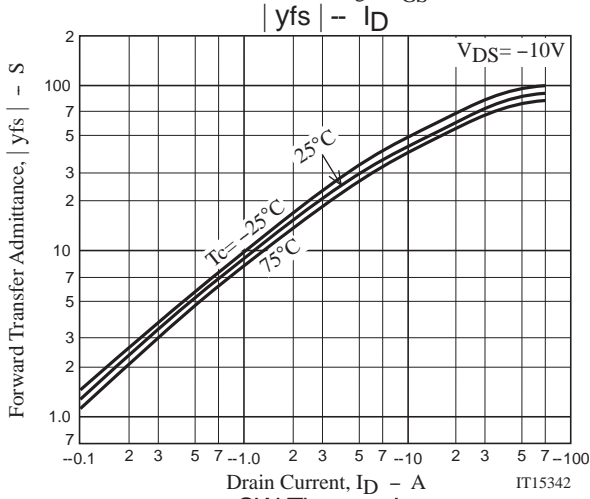
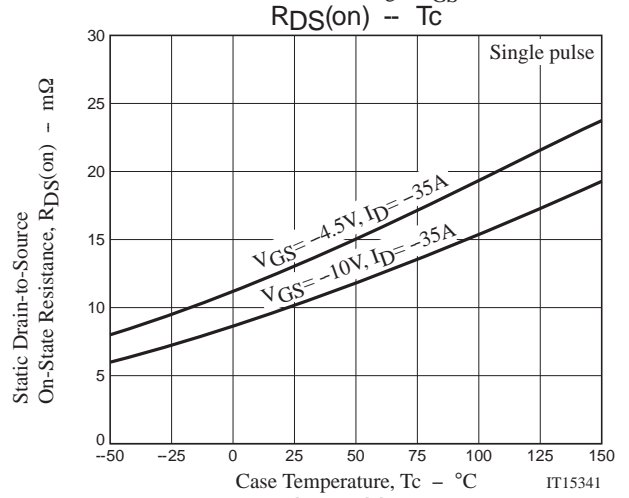
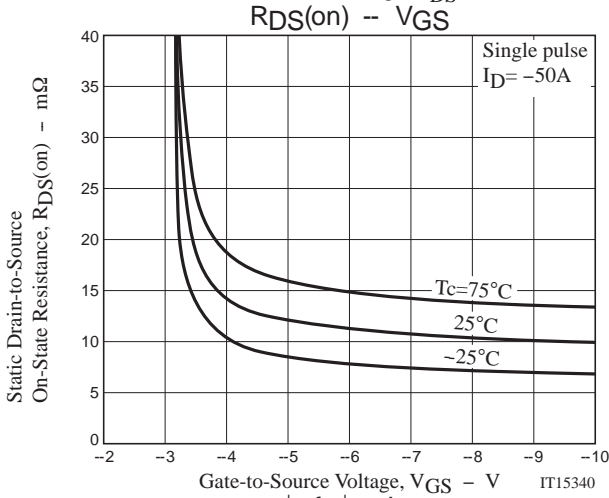
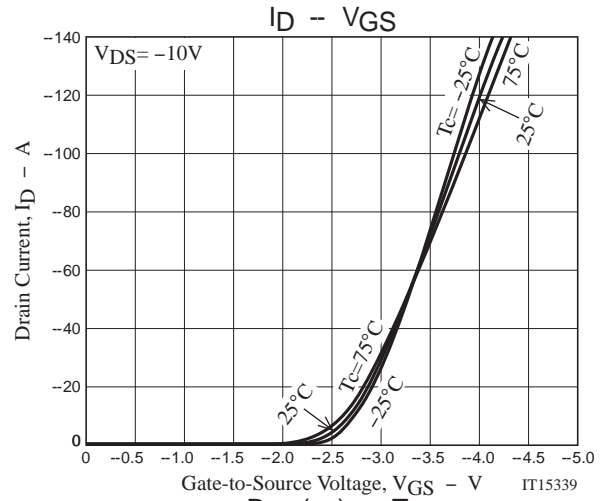
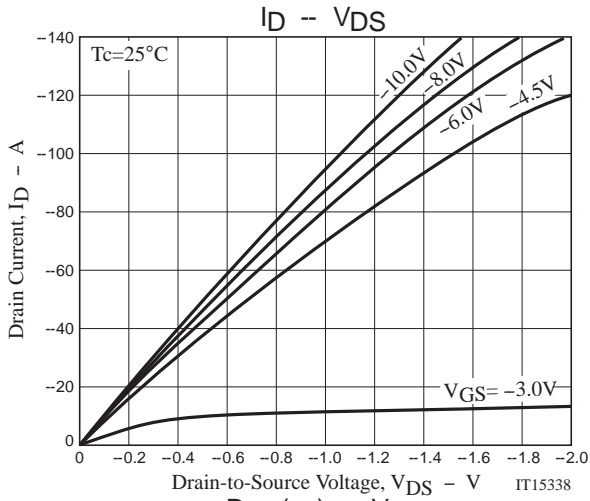


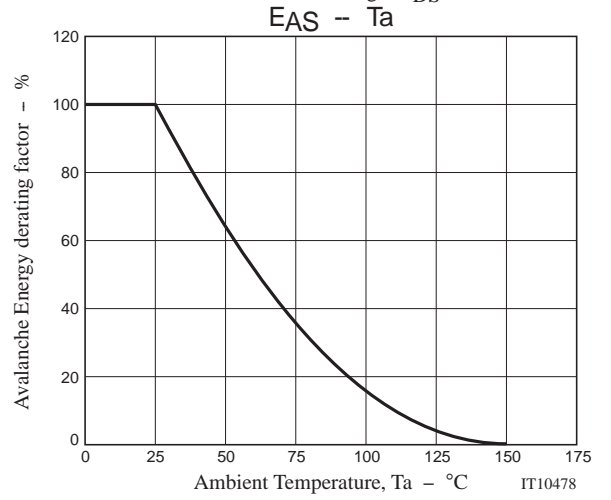
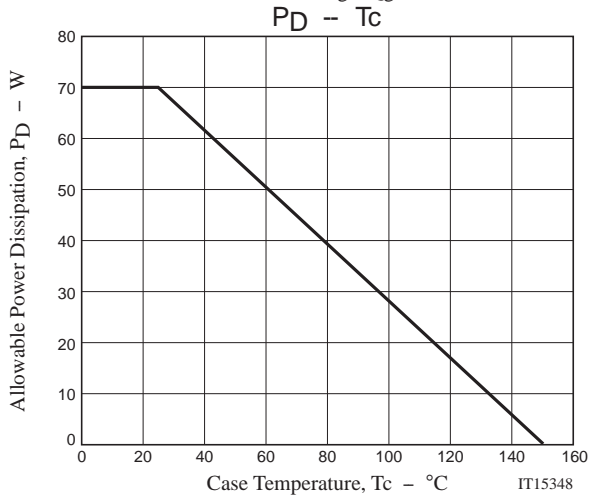
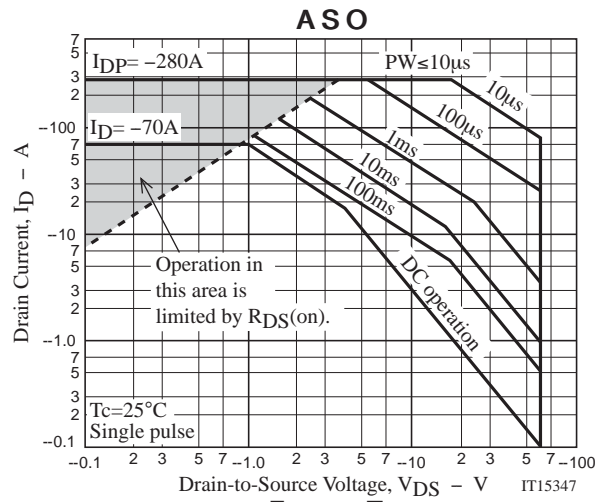
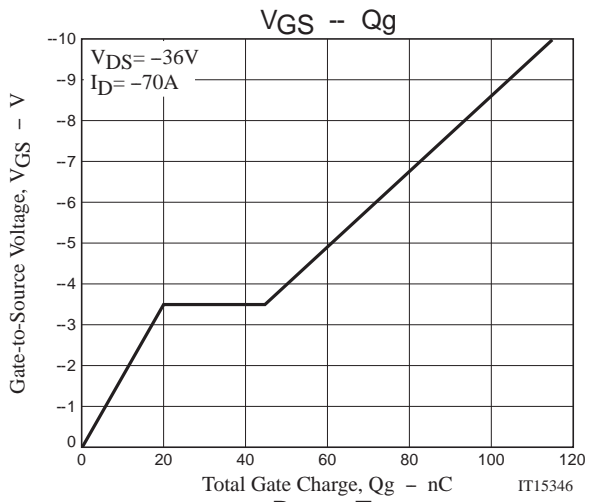
Avalanche Resistance Test Circuit



Ordering Information

Device	Package	Shipping	memo
ATP302-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





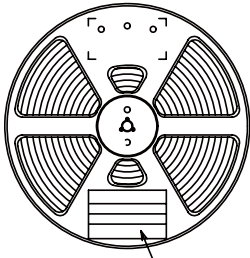
Taping Specification

ATP302-TL-H

1. Packing Format (TL)

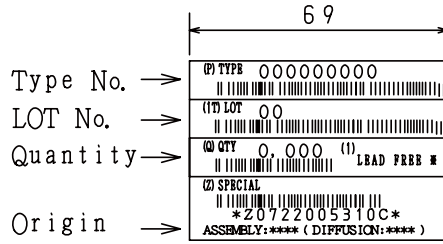
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



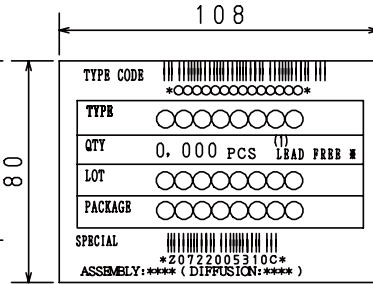
Reel label

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.



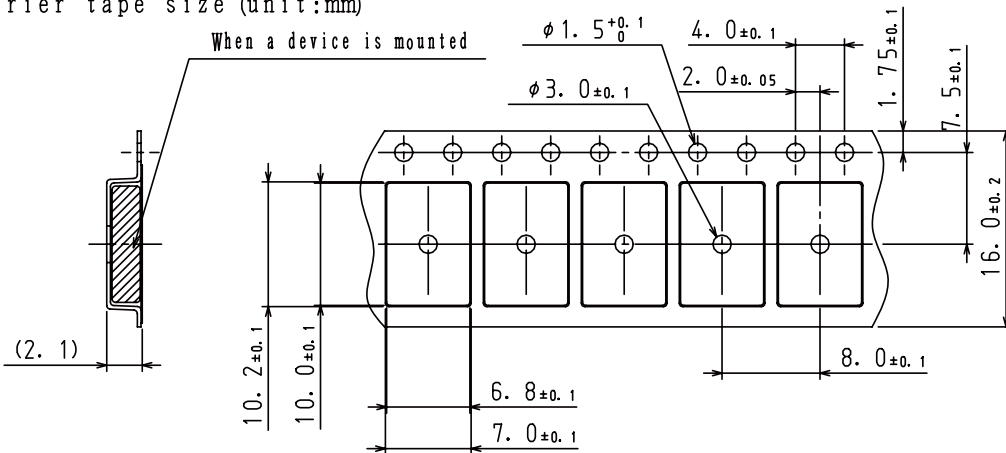
NOTE (1)

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

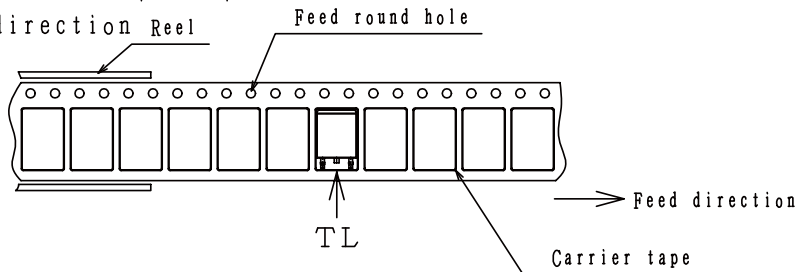
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction Reel

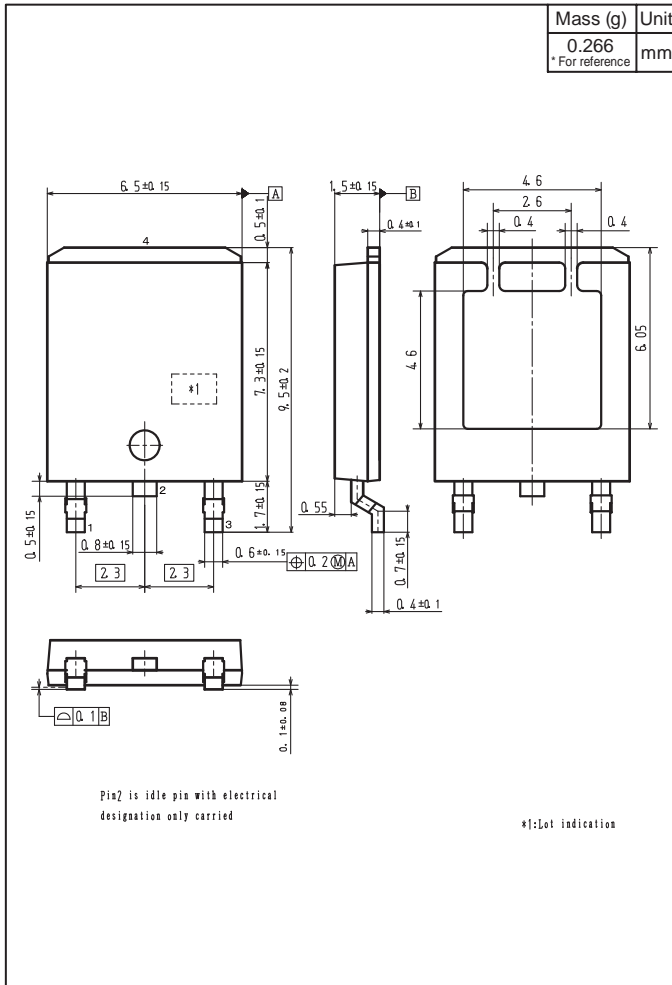


The one electrode terminals on feed hole side...TL

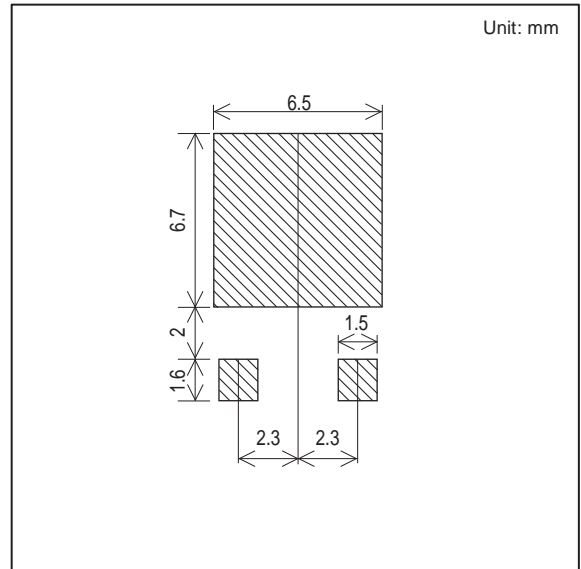
ATP302

Outline Drawing

ATP302-TL-H



Land Pattern Example



Note on usage : Since the ATP302 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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