



ATP401

N-Channel Power MOSFET 60V, 100A, 3.7mΩ, ATPAK

ON Semiconductor®

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Features

- ON-resistance $R_{DS(on)1}=2.8m\Omega$ (typ)
- 4.5V Drive
- Input Capacitance $C_{iss}=17000pF$ (typ)
- Halogen free compliance

Specifications

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

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		100	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	400	A
Allowable Power Dissipation	P_D	$T_c=25^\circ C$	90	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		549	mJ
Avalanche Current *2	I_{AV}		70	A

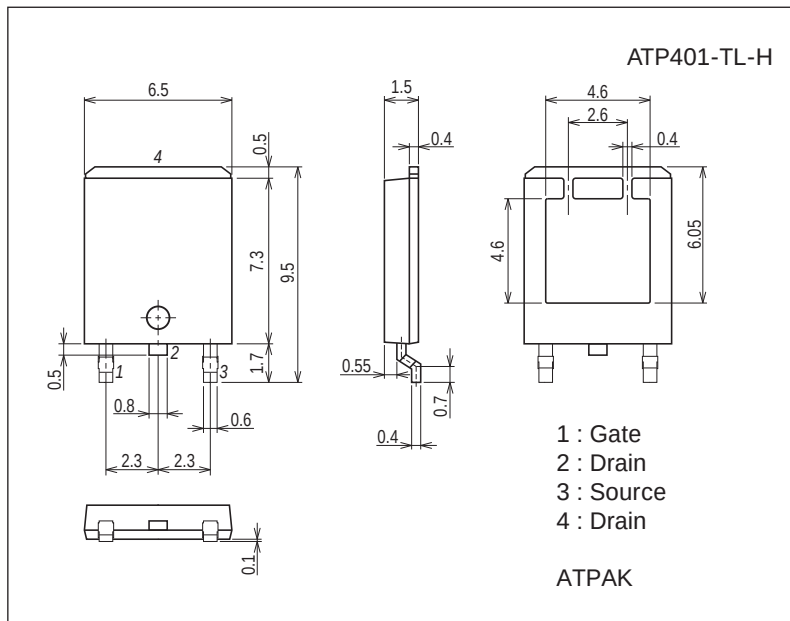
*1 $V_{DD}=36V$, $L=100\mu H$, $I_{AV}=70A$ (Fig.1)*2 $L \leq 100\mu H$, Single pulse

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)

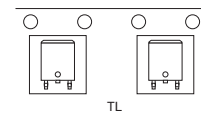
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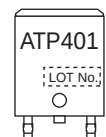
Product & Package Information

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

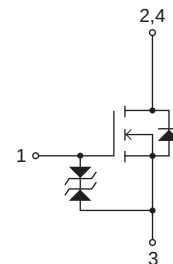
Packing Type: TL



Marking



Electrical Connection



ATP401

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=60V, VGS=0V			10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=50A		90		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=50A, VGS=10V		2.8	3.7	mΩ
	RDS(on)2	ID=50A, VGS=4.5V		3.7	5.2	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		17000		pF
Output Capacitance	Coss			1000		pF
Reverse Transfer Capacitance	Crss			770		pF
Turn-ON Delay Time	td(on)	See Fig.2		110		ns
Rise Time	tr			580		ns
Turn-OFF Delay Time	td(off)			840		ns
Fall Time	tf			710		ns
Total Gate Charge	Qg	VDS=36V, VGS=10V, ID=100A		300		nC
Gate-to-Source Charge	Qgs			60		nC
Gate-to-Drain "Miller" Charge	Qgd			60		nC
Diode Forward Voltage	VSD	IS=100A, VGS=0V		0.9	1.2	V

Fig.1 Unclamped Inductive Switching Test Circuit

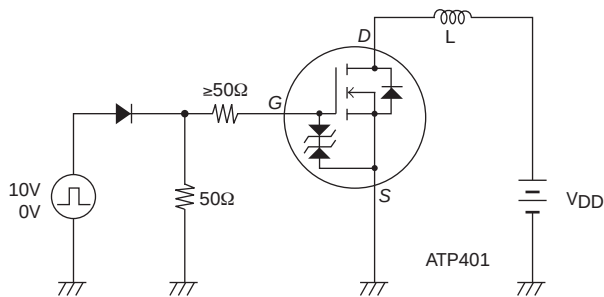
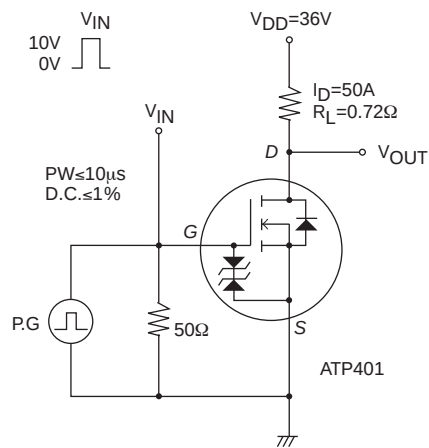
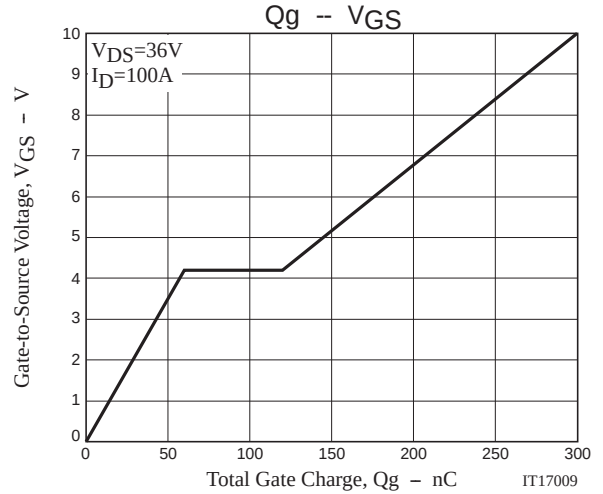
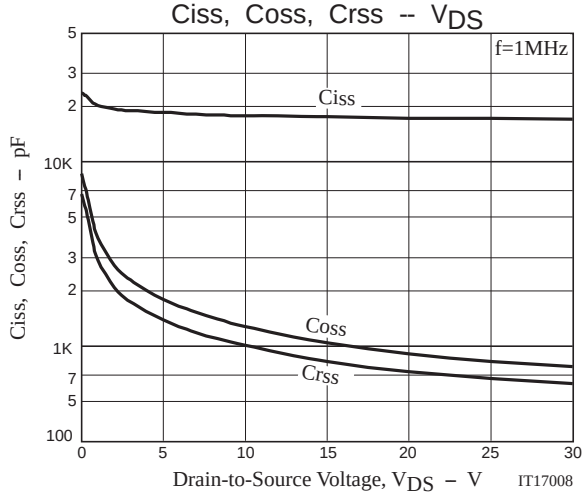
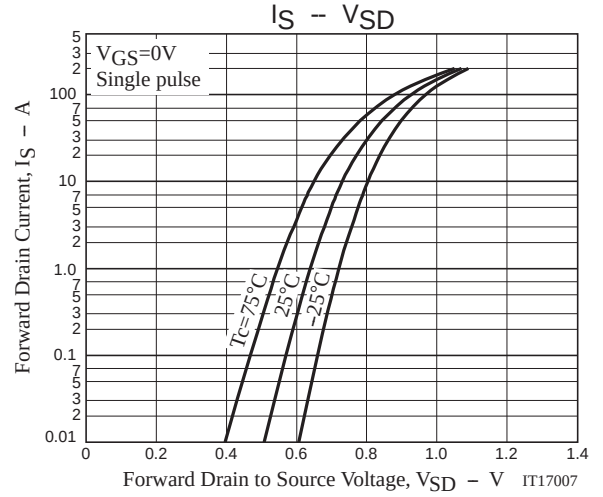
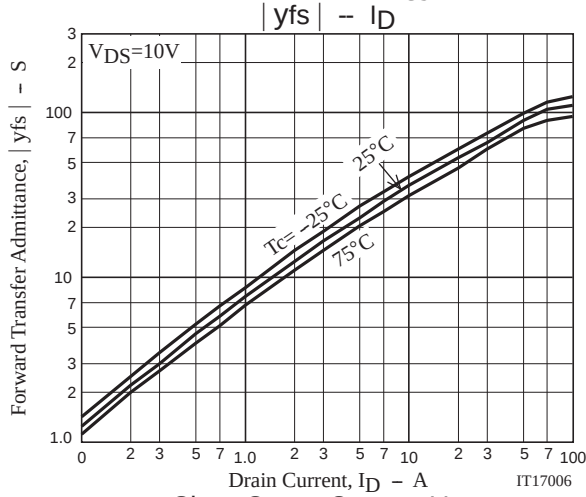
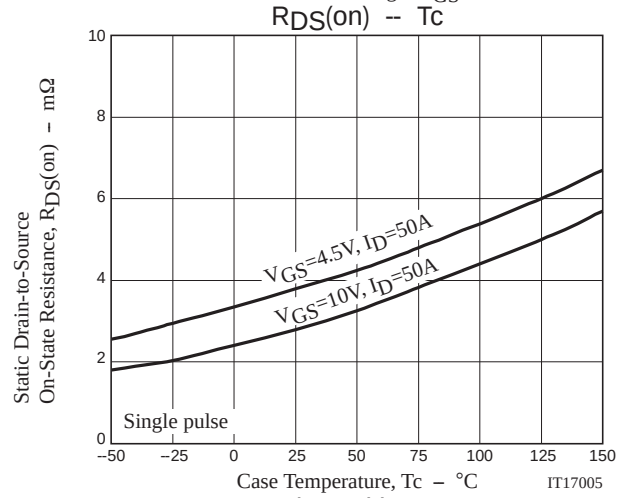
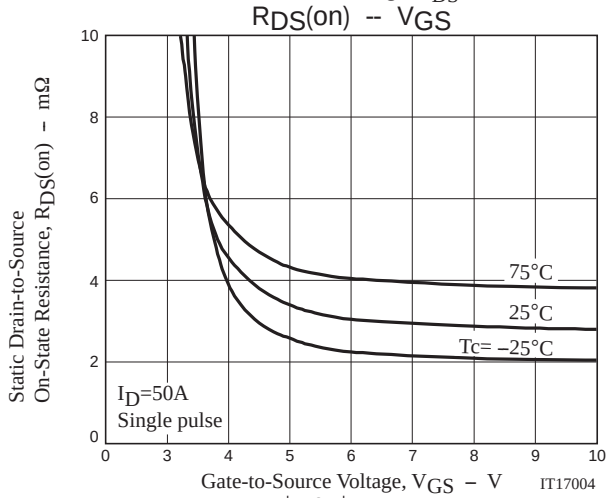
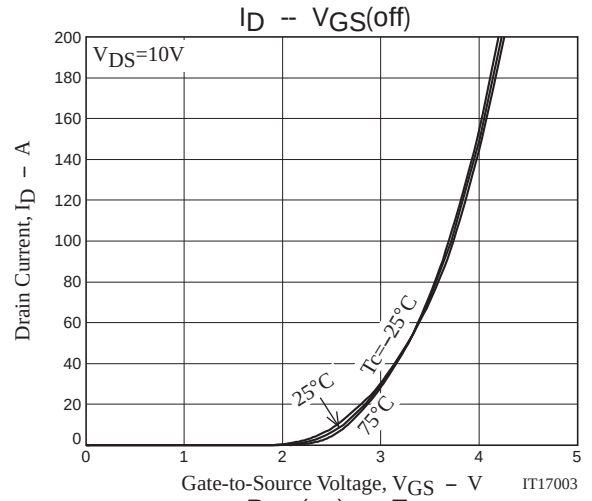
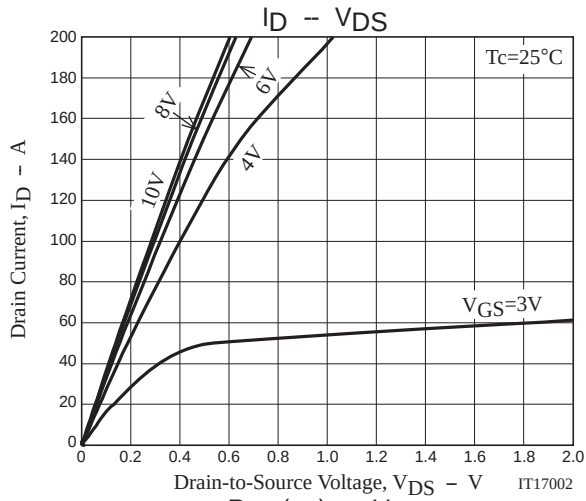


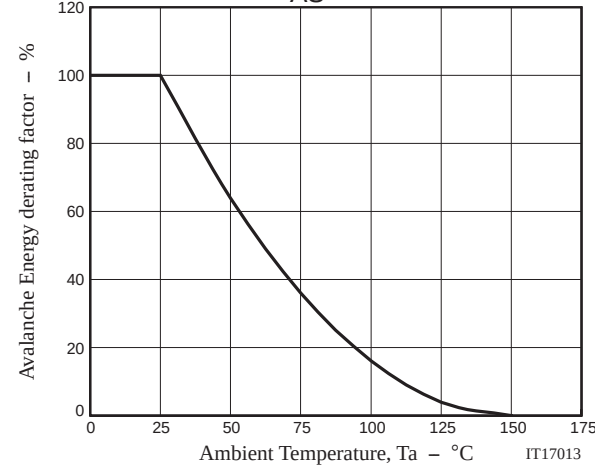
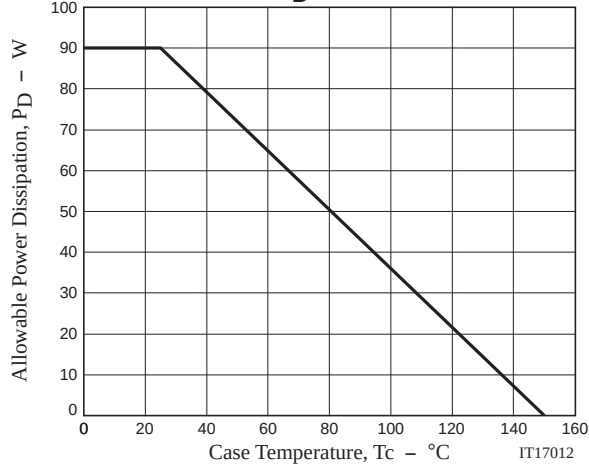
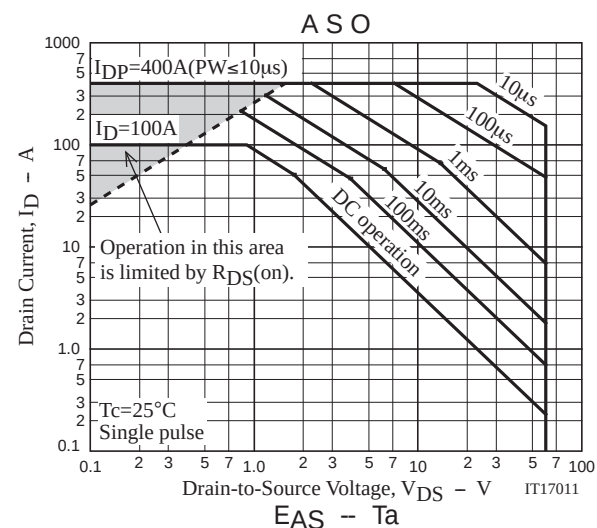
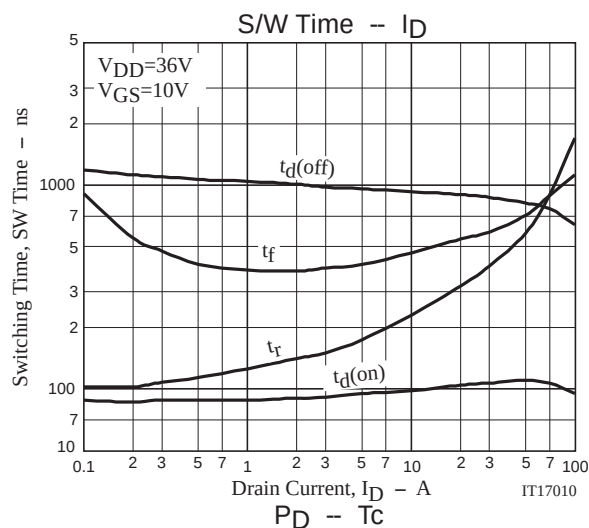
Fig.2 Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
ATP401-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free



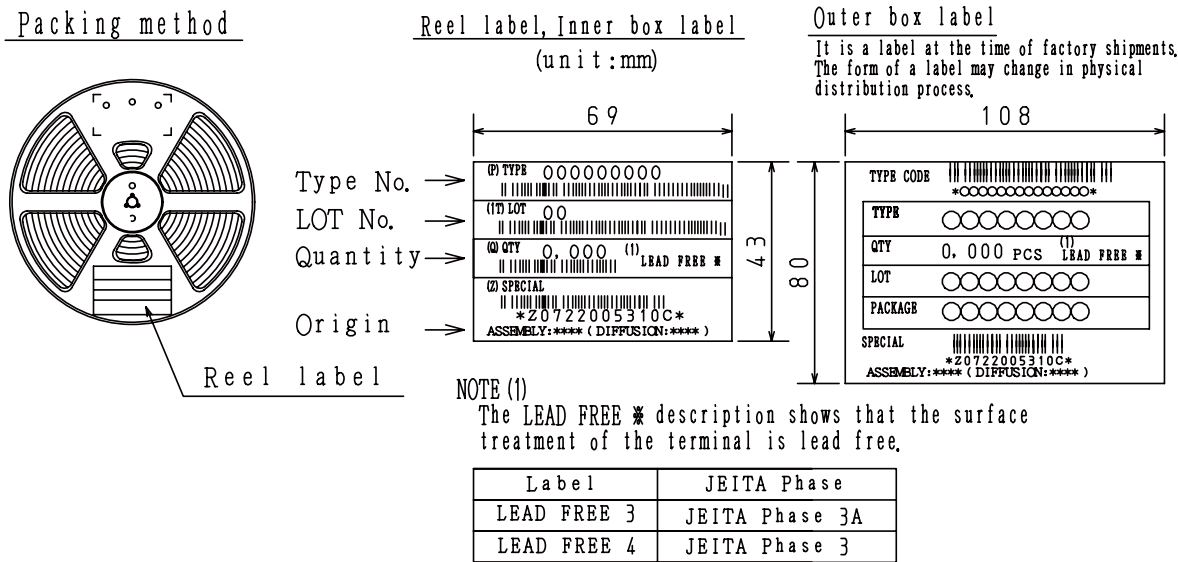


Taping Specification

ATP401-TL-H

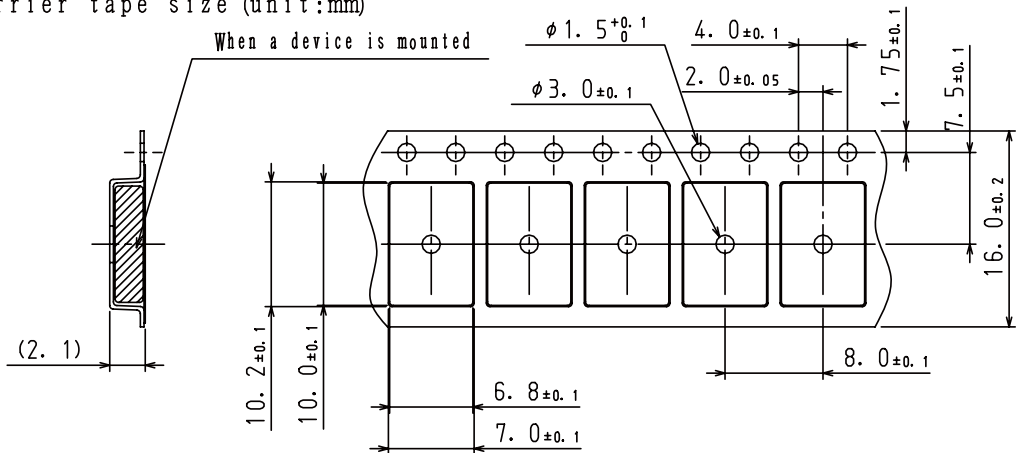
1. Packing Format (TL)

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

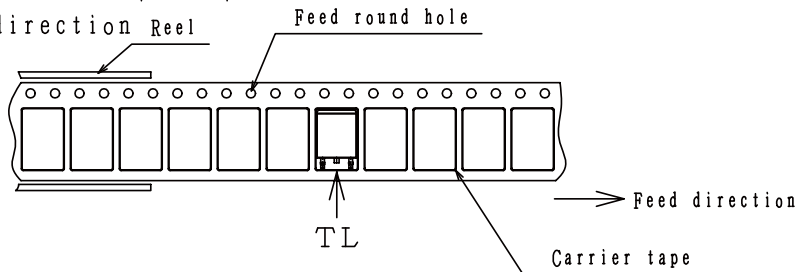


2. Taping configuration

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

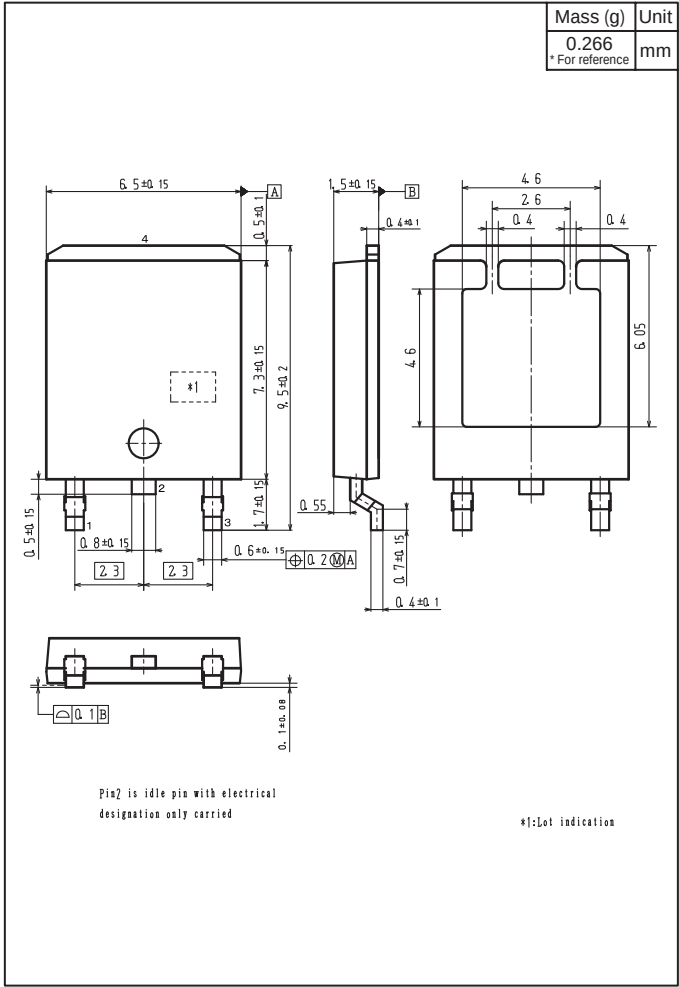


2-2. Device placement direction Reel

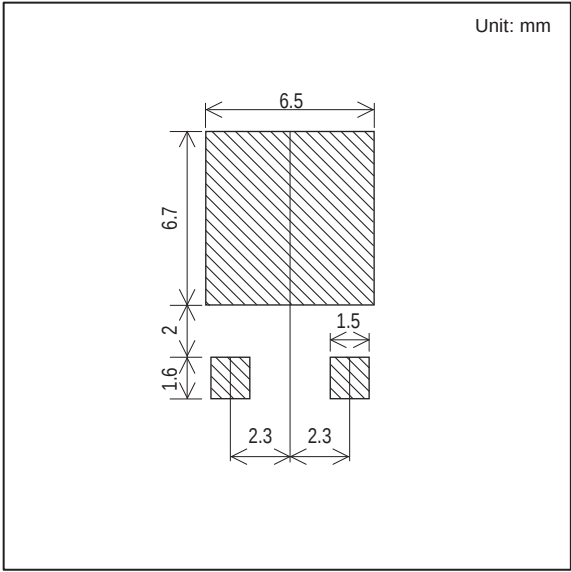


The one electrode terminals on feed hole side...TL

Outline Drawing
ATP401-TL-H



Land Pattern Example



Note on usage : Since the ATP401 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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