



# SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

# ATP602 — General-Purpose Switching Device Applications

## Features

- ON-resistance  $R_{DS(on)}=2.1\Omega$  (typ.)
- 10V drive
- Input capacitance  $C_{iss}=350\text{pF}$  (typ.)
- Halogen free compliance

## Specifications

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

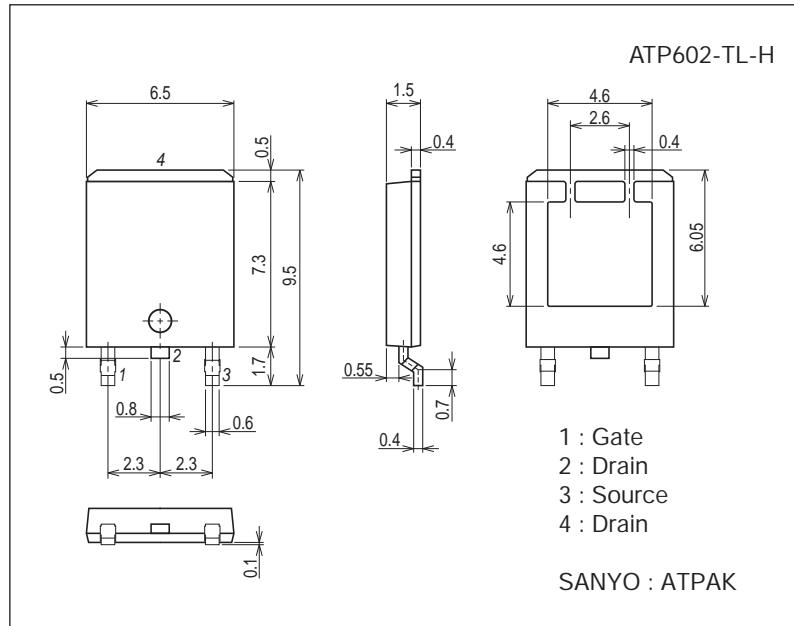
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		600	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	15	A
Allowable Power Dissipation	$P_D$	$T_c=25^\circ\text{C}$	70	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	$E_{AS}$		74	mJ
Avalanche Current *2	$I_{AV}$		5	A

Note : \*1  $V_{DD}=99\text{V}$ ,  $L=5\text{mH}$ ,  $I_{AV}=5\text{A}$  (Fig.1)\*2  $L \leq 5\text{mH}$ , Single pulse

## Package Dimensions

unit : mm (typ)

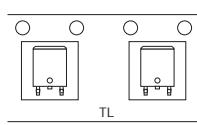
7057-001



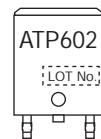
## Product & Package Information

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

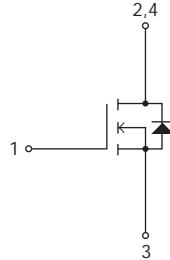
## Packing Type: TL



## Marking



## Electrical Connection



Electrical Characteristics at  $T_a=25^\circ C$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V(BR)DSS$	$I_D=10\text{mA}, V_{GS}=0\text{V}$	600			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=480\text{V}, V_{GS}=0\text{V}$			100	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30\text{V}, V_{DS}=0\text{V}$			$\pm 100$	nA
Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	3		5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=2.5\text{A}$	1.5	2.9		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})}$	$I_D=2.5\text{A}, V_{GS}=10\text{V}$		2.1	2.7	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=30\text{V}, f=1\text{MHz}$		350		pF
Output Capacitance	$C_{oss}$			68		pF
Reverse Transfer Capacitance	$C_{rss}$			15		pF
Turn-ON Delay Time	$t_{d(\text{on})}$	See Fig.2		14.2		ns
Rise Time	$t_r$			37.4		ns
Turn-OFF Delay Time	$t_{d(\text{off})}$			36.2		ns
Fall Time	$t_f$			20.4		ns
Total Gate Charge	$Q_g$	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=5\text{A}$		13.6		nC
Gate-to-Source Charge	$Q_{gs}$			3.4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			7.2		nC
Diode Forward Voltage	$V_{SD}$	$I_S=5\text{A}, V_{GS}=0\text{V}$		0.9	1.2	V

Fig.1 Avalanche Resistance Test Circuit

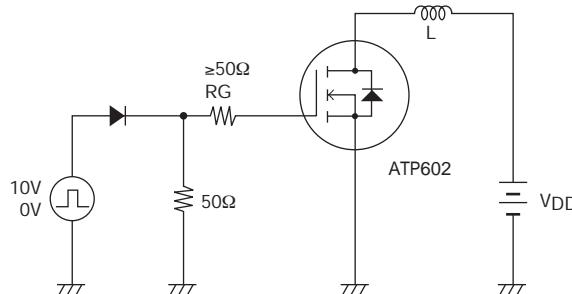
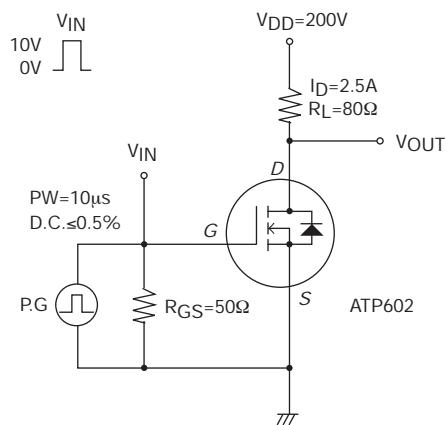
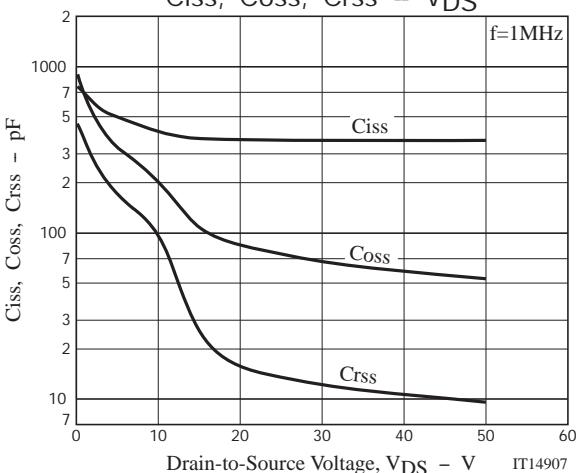
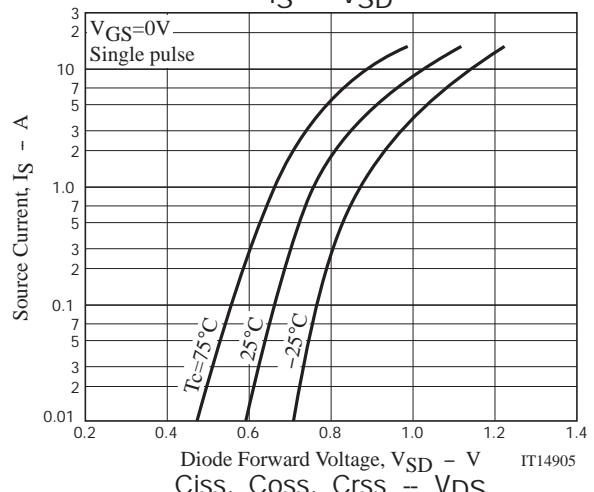
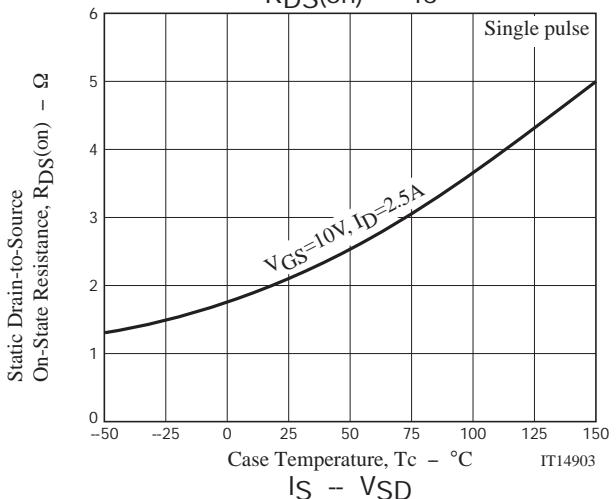
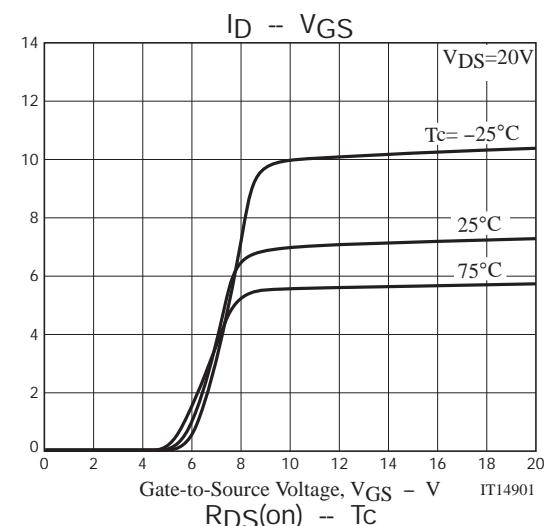
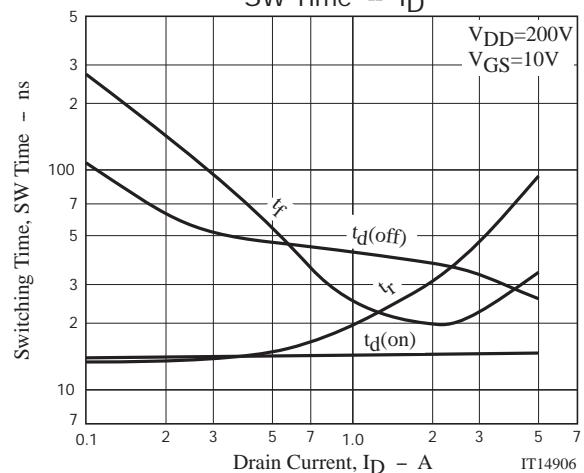
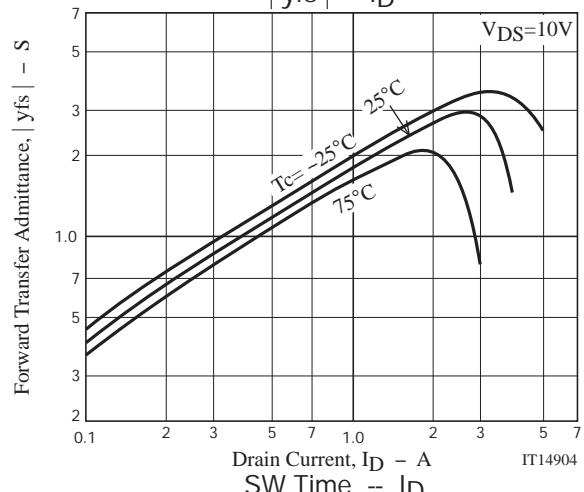
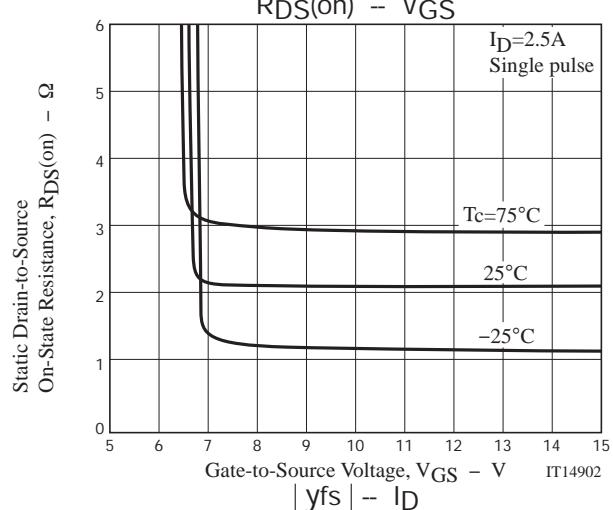
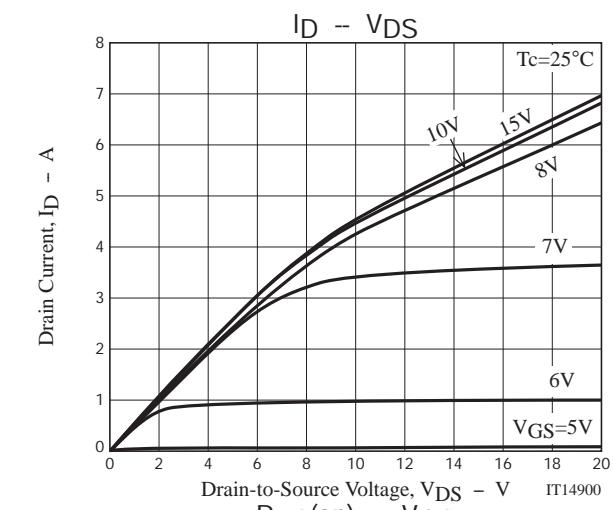


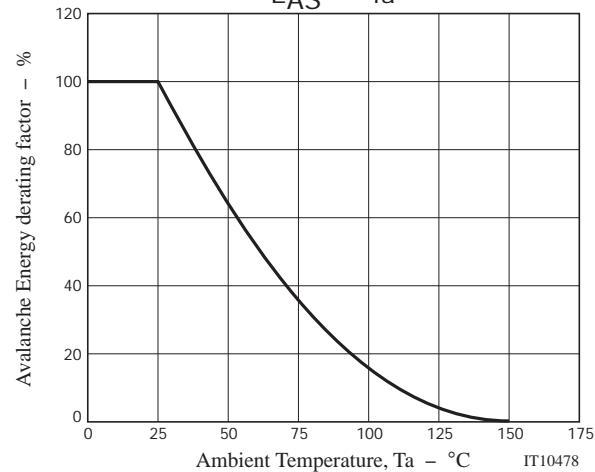
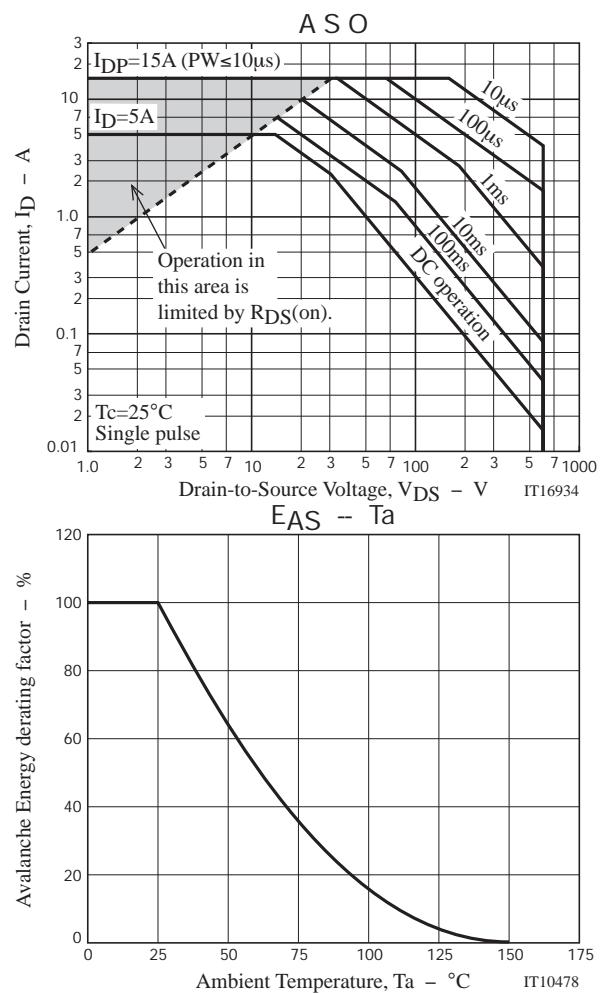
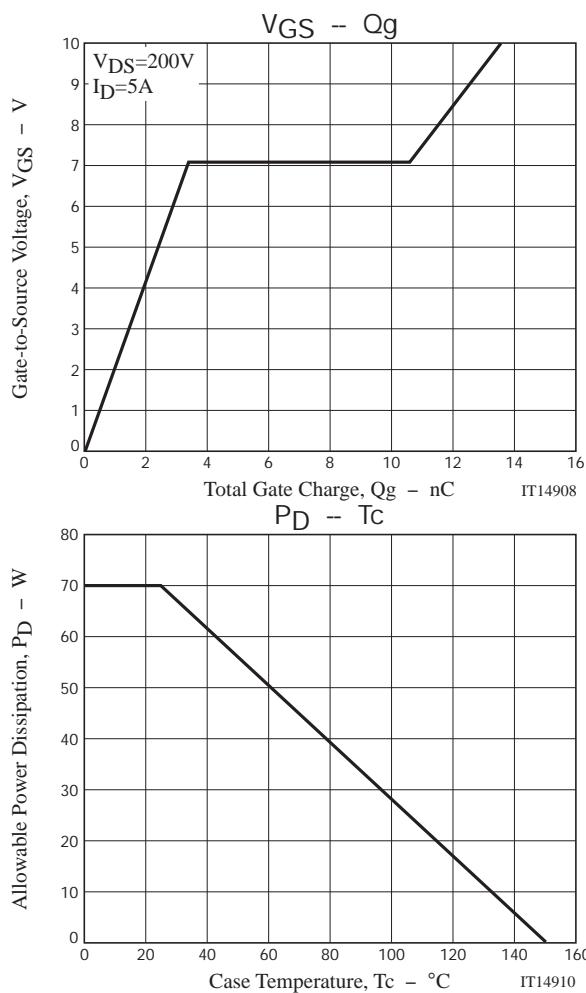
Fig.2 Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ATP602-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free



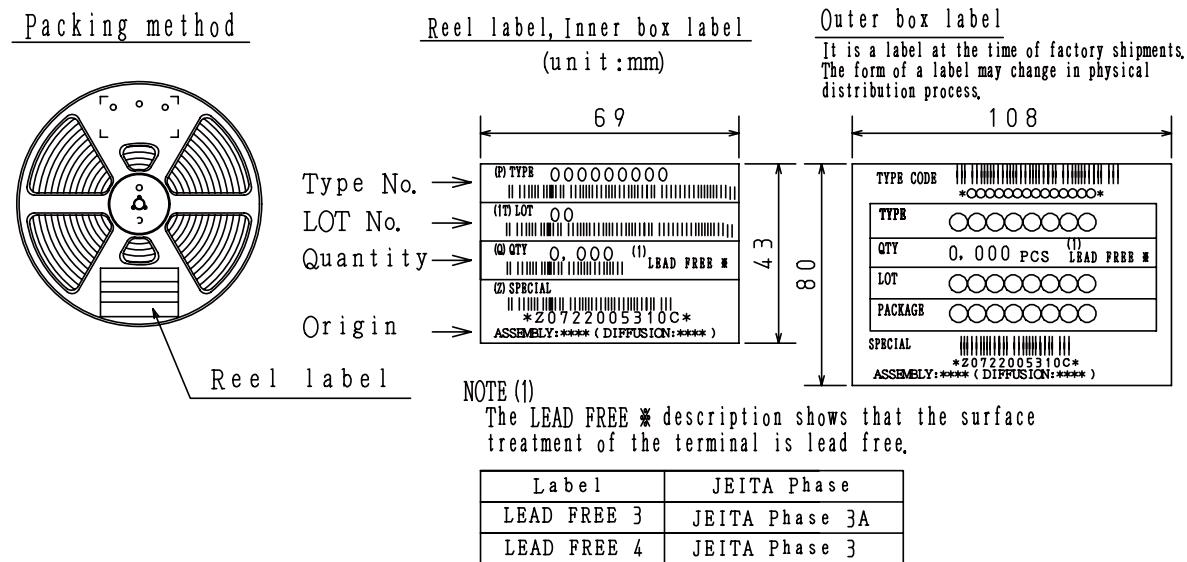


## Taping Specification

ATP602-TL-H

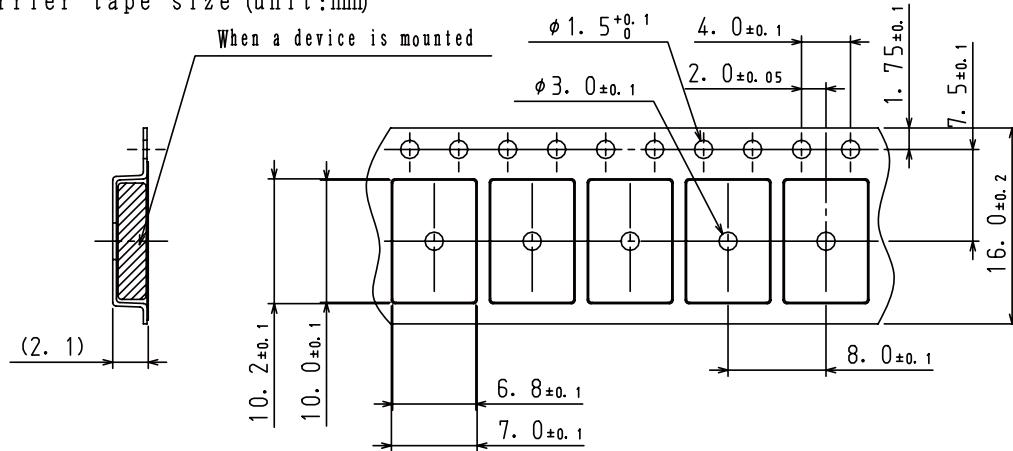
## 1. Packing Format (TL)

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

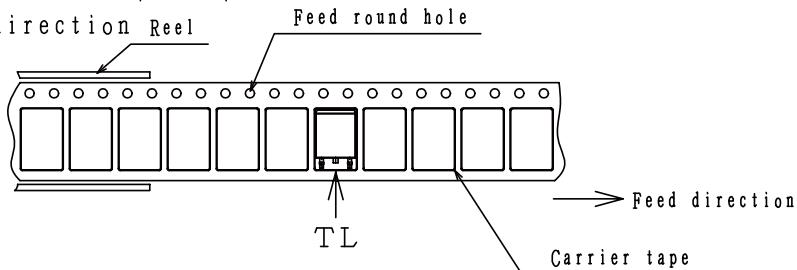


## 2. Taping configuration

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



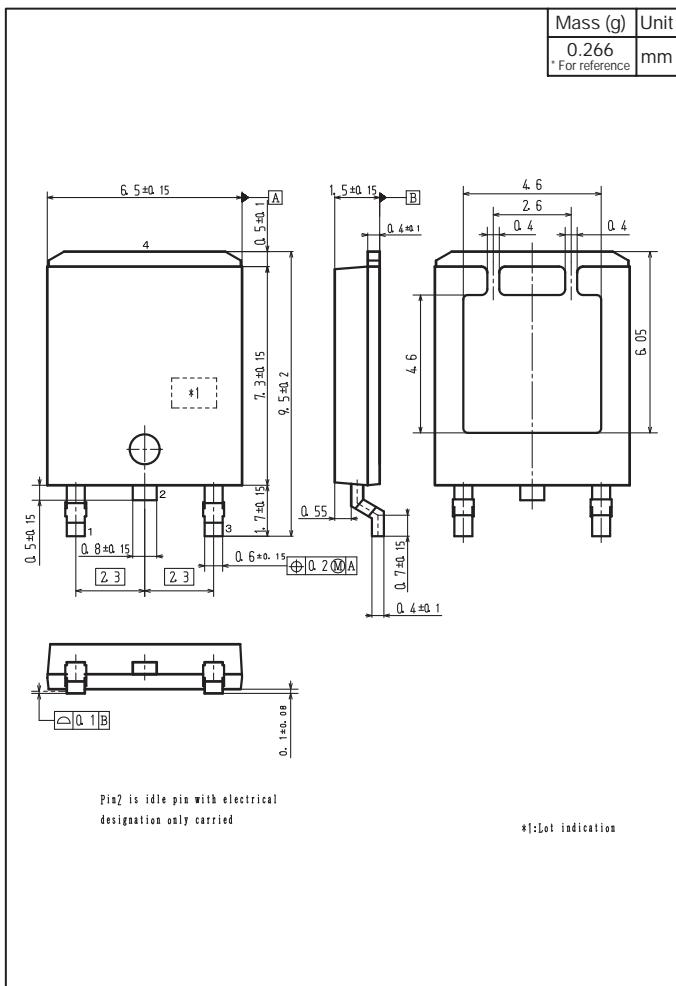
## 2-2. Device placement direction Reel



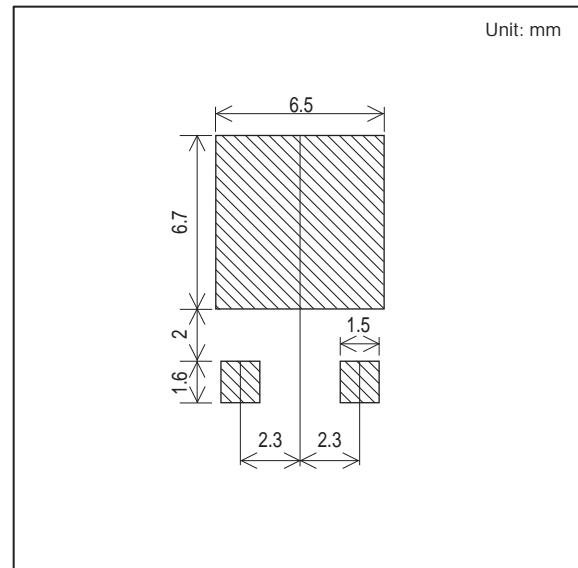
The one electrode terminals on feed hole side....TL

## Outline Drawing

ATP602-TL-H



## Land Pattern Example



Note on usage : Since the ATP602 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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