



# 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

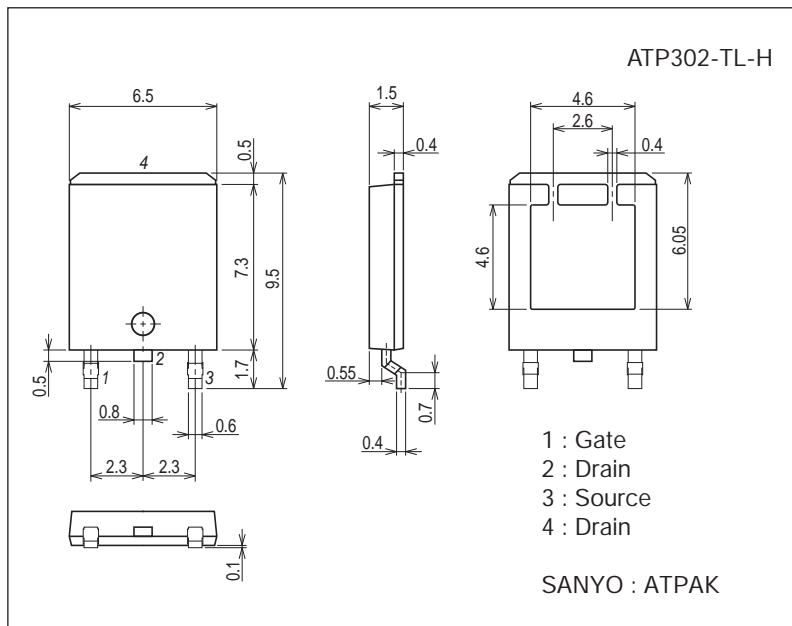
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	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

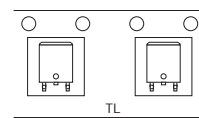
unit : mm (typ)  
7057-001



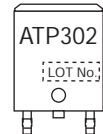
### Product & Package Information

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

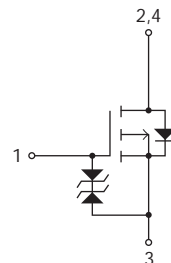
### Packing Type: TL



### Marking



### Electrical Connection

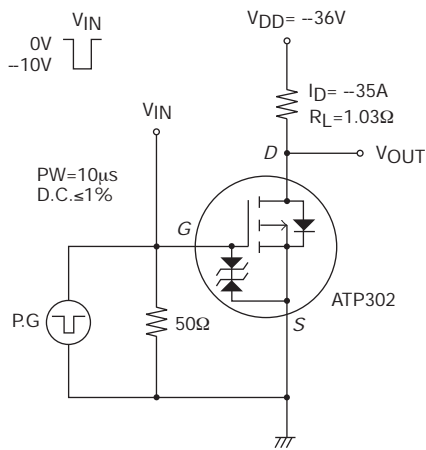


# ATP302

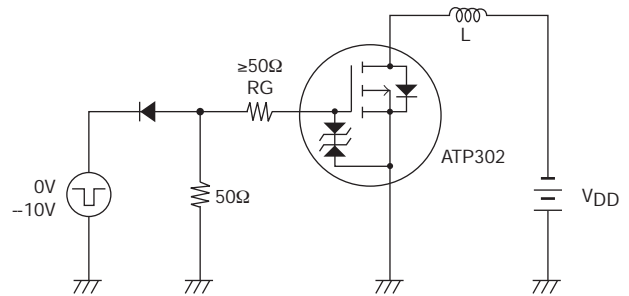
## Electrical Characteristics at Ta=25°C

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	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
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		$\text{pF}$
Output Capacitance	$C_{oss}$	$V_{DS} = -20\text{V}, f = 1\text{MHz}$		500		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$			370		$\text{pF}$
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

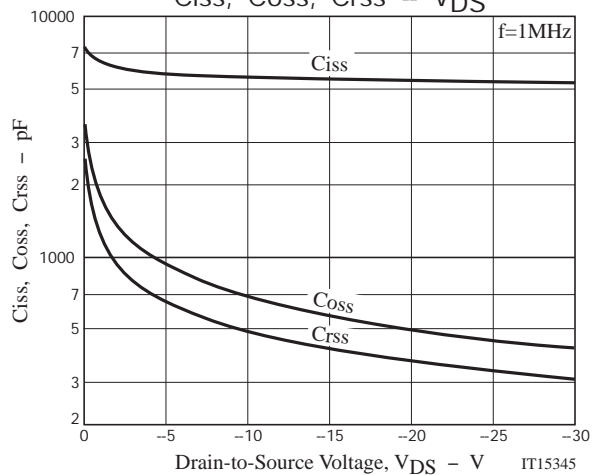
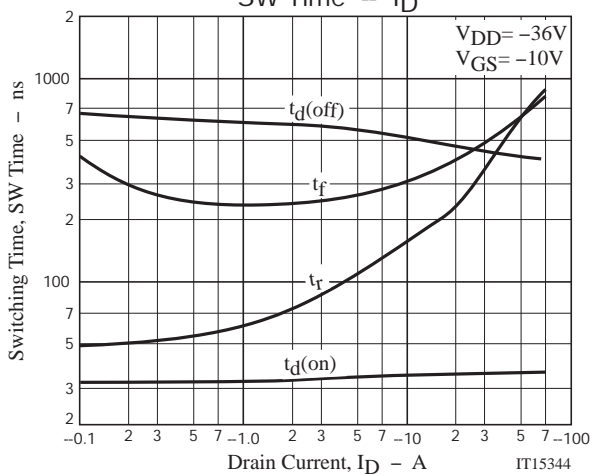
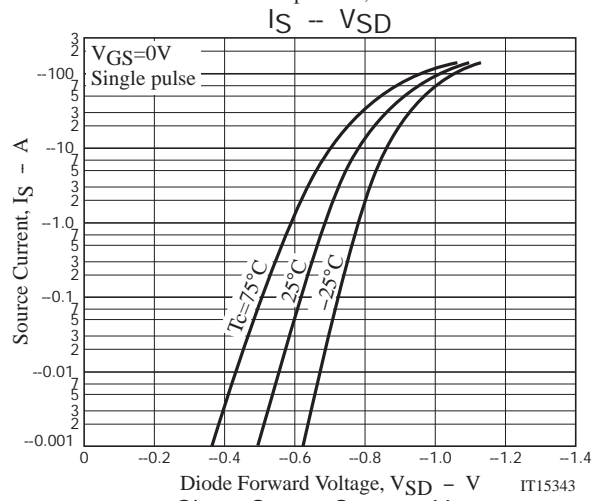
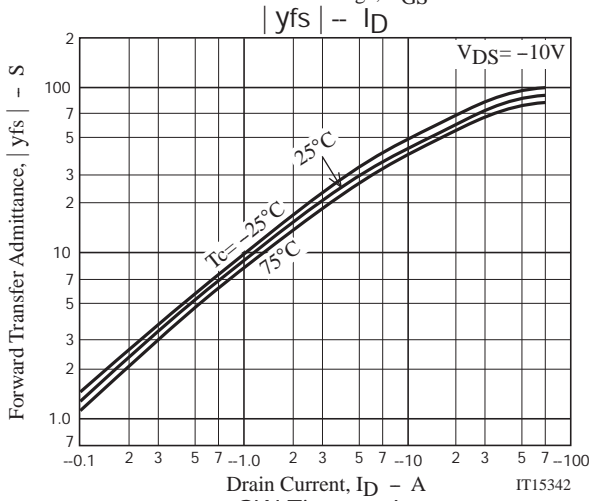
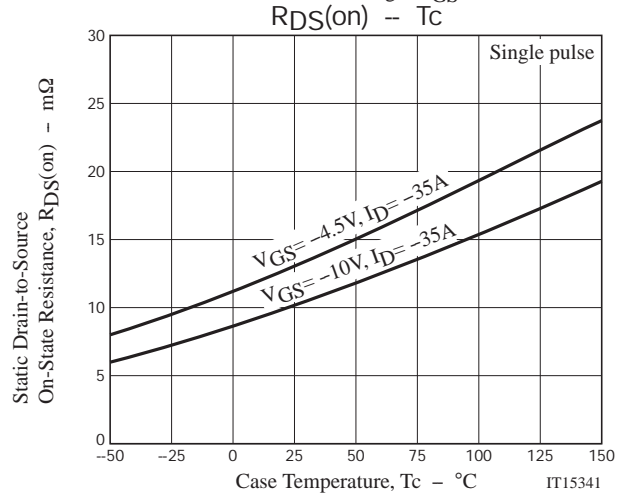
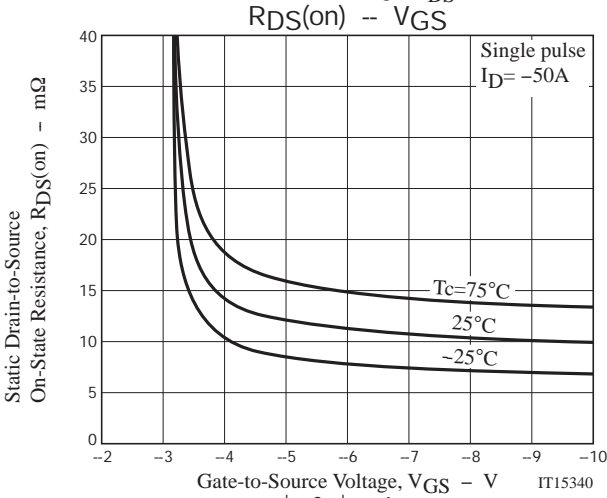
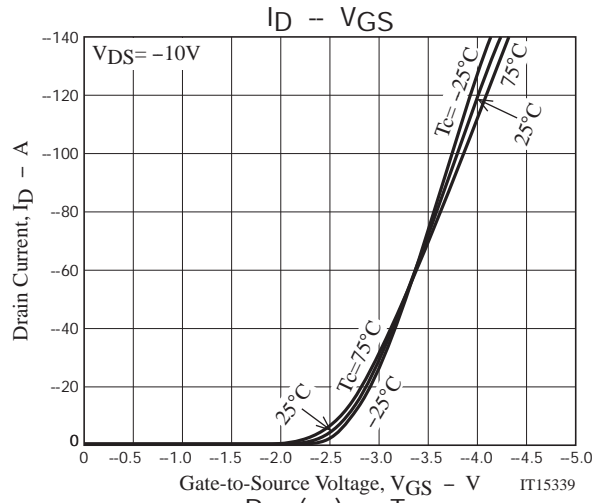
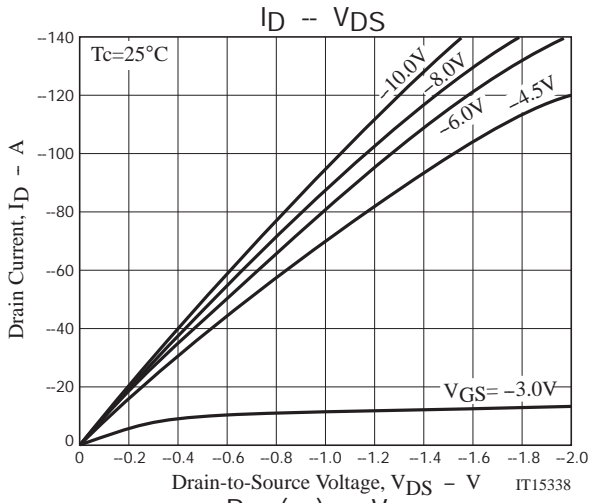


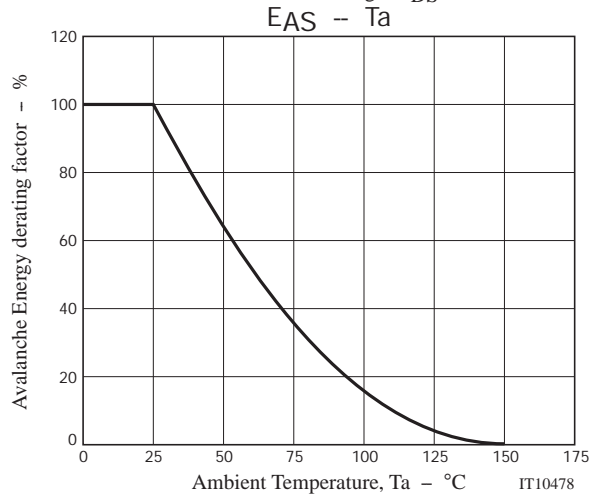
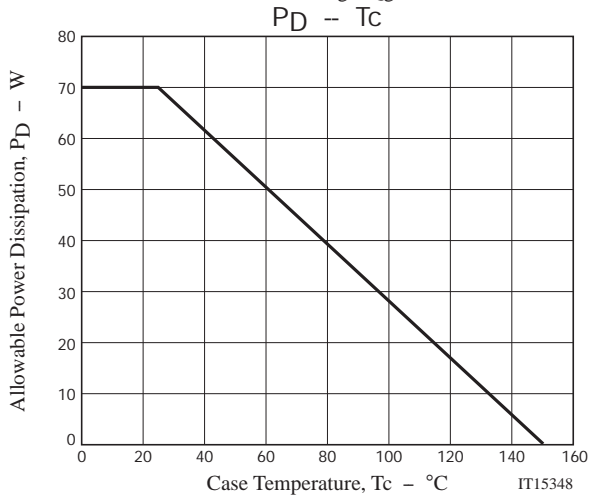
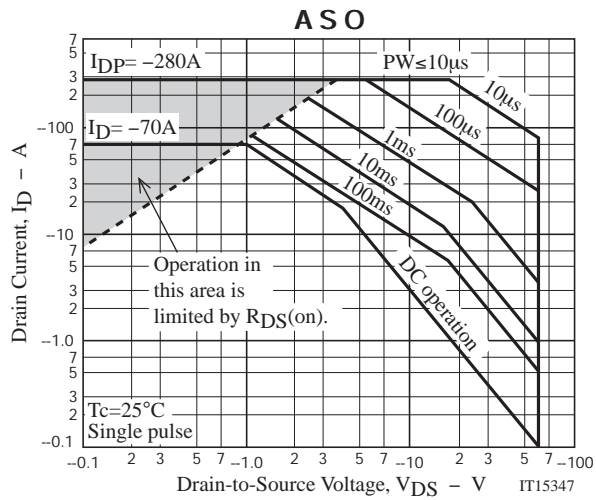
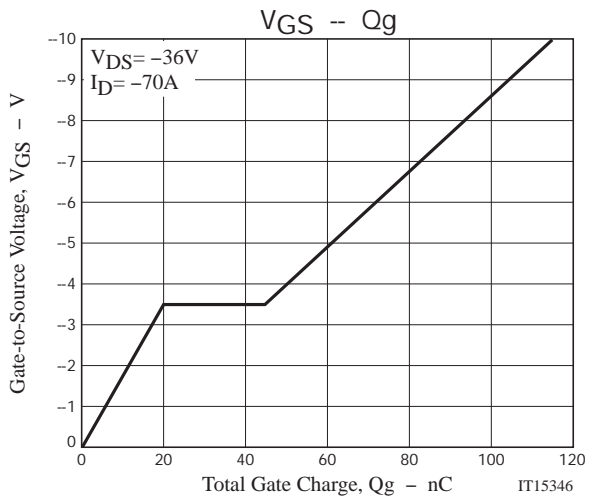
### Avalanche Resistance Test Circuit



### Ordering Information

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





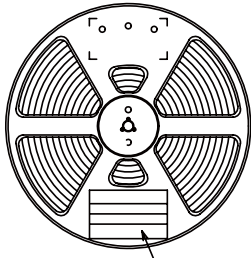
Taping Specification

ATP302-TL-H

1. Packing Format (TL)

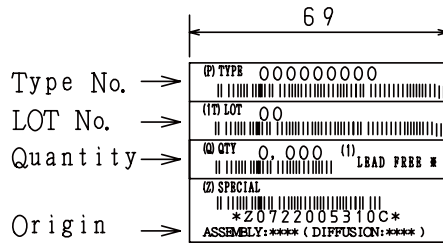
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



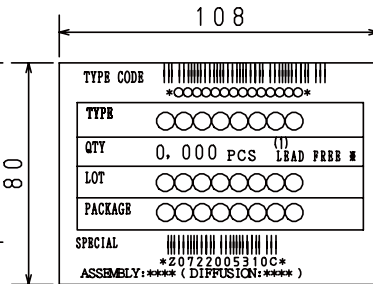
Reel label

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.



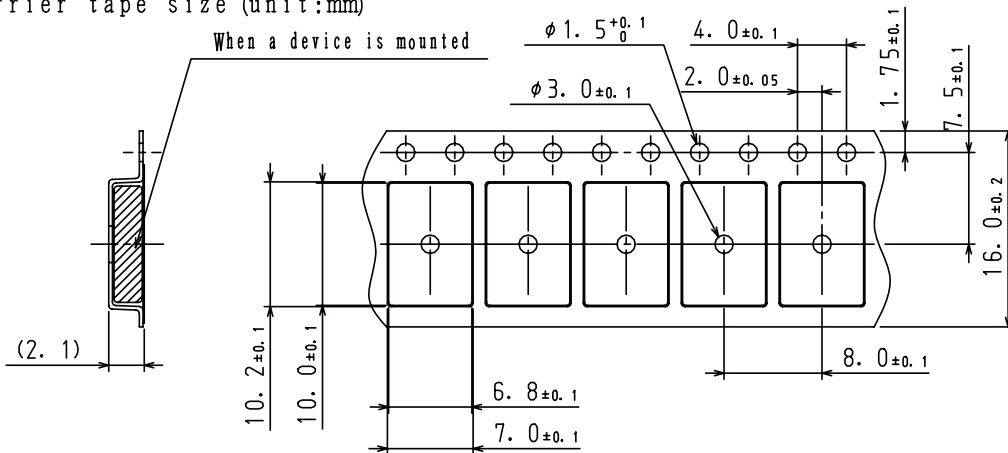
NOTE (1)

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

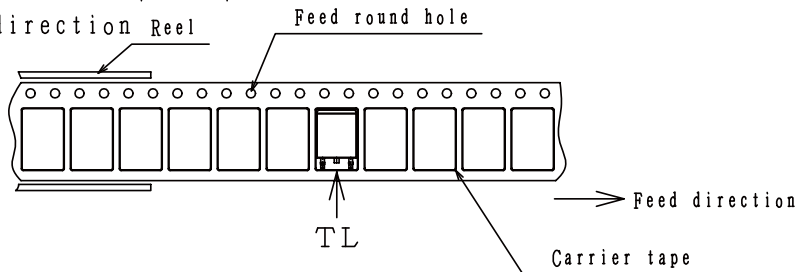
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

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

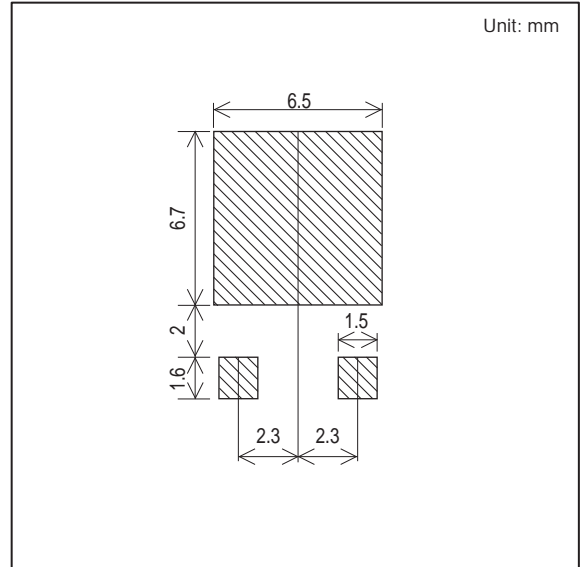
# ATP302

## 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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