



# ATP301 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)}=57m\Omega$  (typ.)
- 10V drive
- Input capacitance  $C_{iss}=4000pF$  (typ.)
- Halogen free compliance

### Specifications

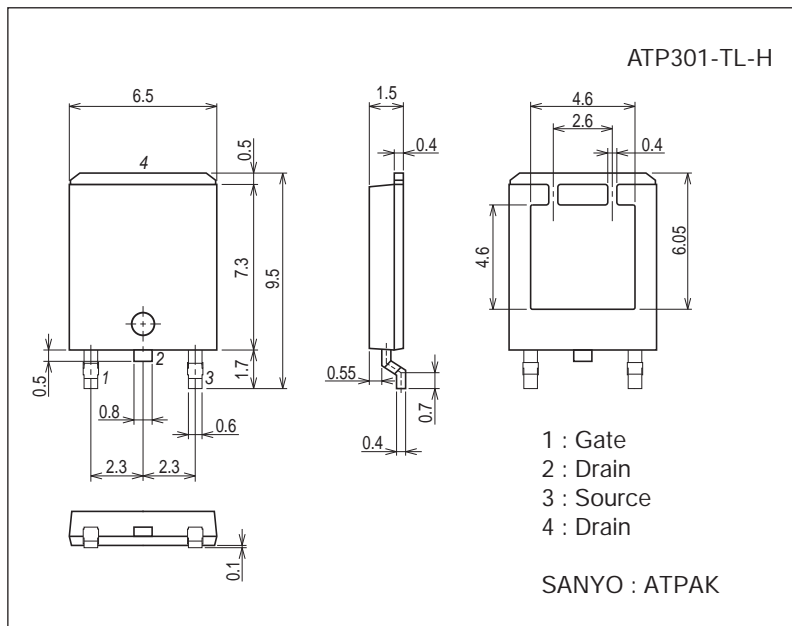
Absolute Maximum Ratings at  $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-100	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-28	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-112	A
Allowable Power Dissipation	$P_D$	$T_c=25^\circ C$	70	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	$E_{AS}$		54	mJ
Avalanche Current *2	$I_{AV}$		-28	A

Note : \*1  $V_{DD}=-30V$ ,  $L=100\mu H$ ,  $I_{AV}=-28A$   
 \*2  $L \leq 100\mu H$ , Single pulse

### Package Dimensions

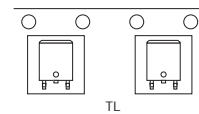
unit : mm (typ)  
 7057-001



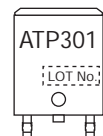
### Product & Package Information

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

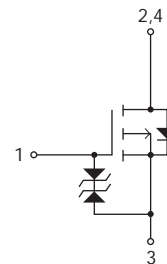
### Packing Type: TL



### Marking



### Electrical Connection

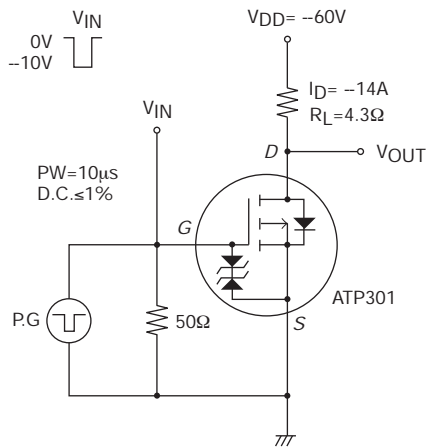


# ATP301

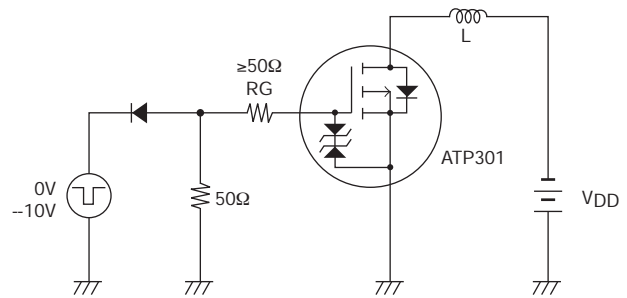
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-100			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -100V, V_{GS} = 0V$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-2.0		-3.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -14A$		32		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D = -14A, V_{GS} = -10V$		57	75	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -20V, f = 1MHz$		4000		pF
Output Capacitance	$C_{oss}$			270		pF
Reverse Transfer Capacitance	$C_{rss}$			150		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		32		ns
Rise Time	$t_r$			130		ns
Turn-OFF Delay Time	$t_{d(off)}$			330		ns
Fall Time	$t_f$			190		ns
Total Gate Charge	$Q_g$	$V_{DS} = -60V, V_{GS} = -10V, I_D = -28A$		73		nC
Gate-to-Source Charge	$Q_{gs}$			16		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			14		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -28A, V_{GS} = 0V$		-1.0	-1.5	V

### Switching Time Test Circuit

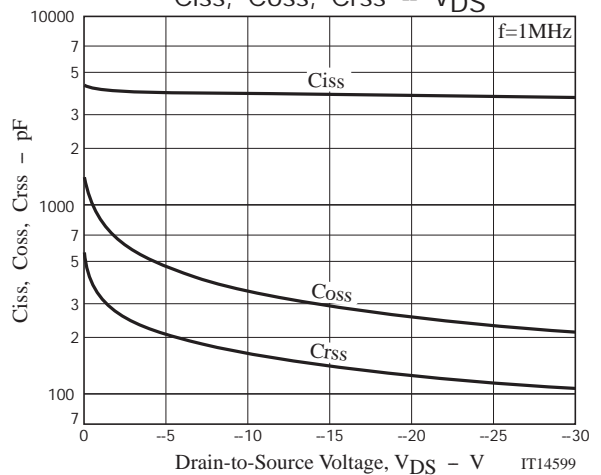
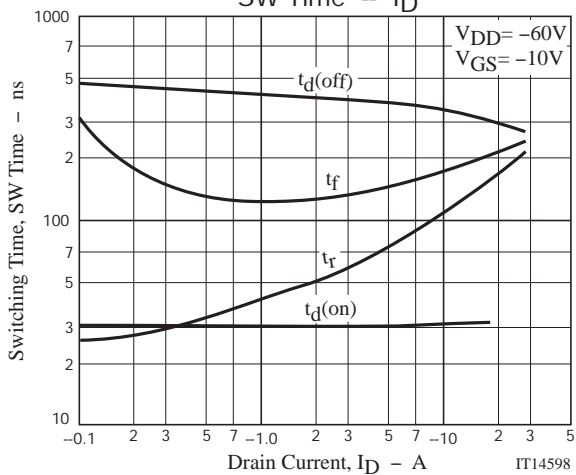
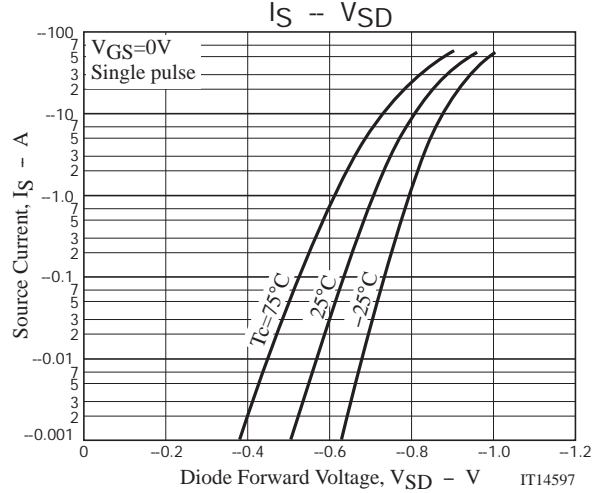
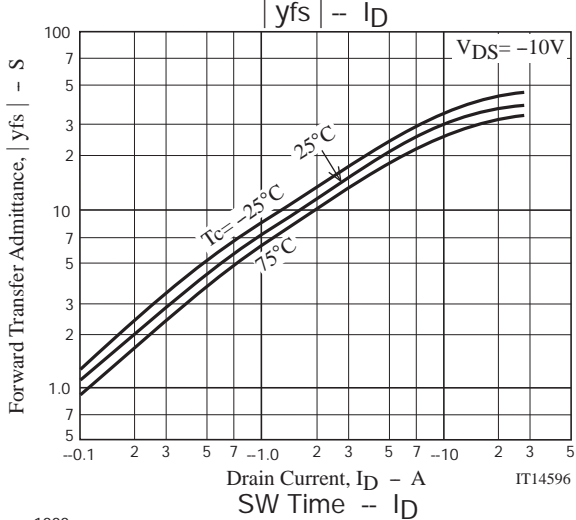
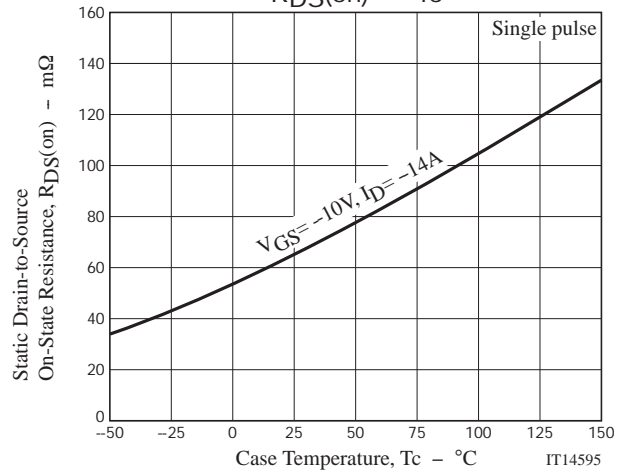
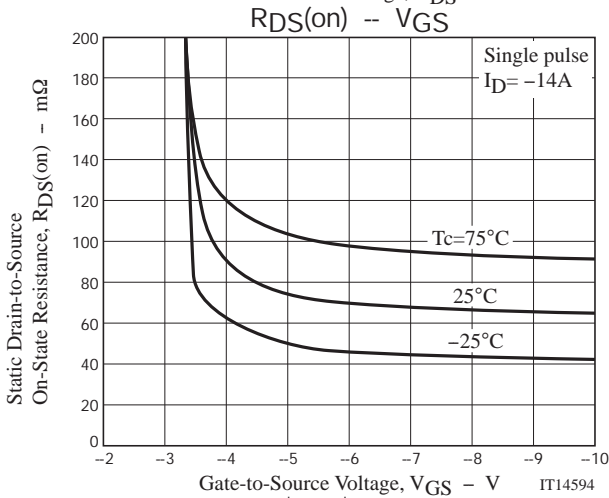
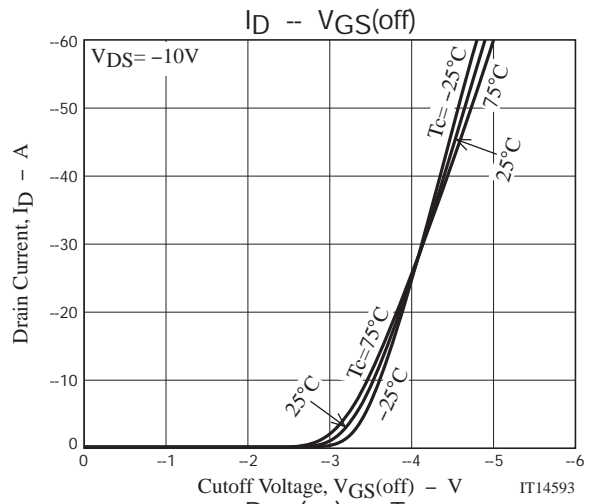
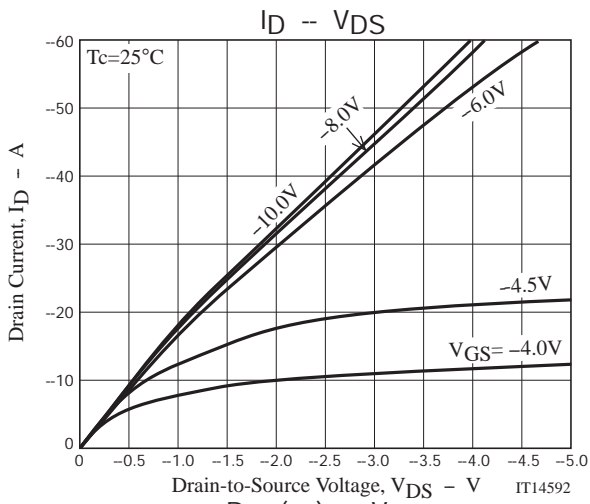


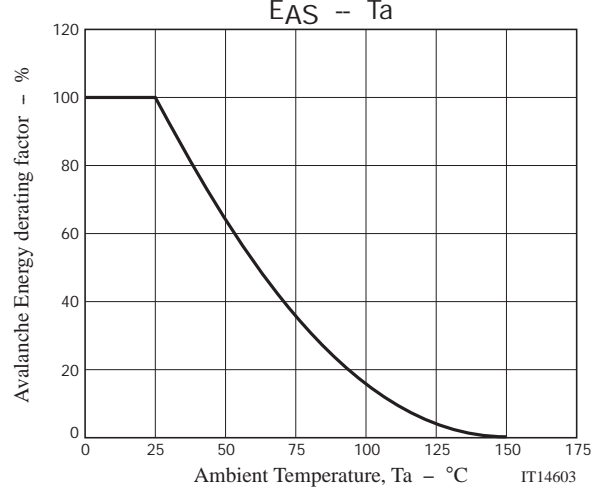
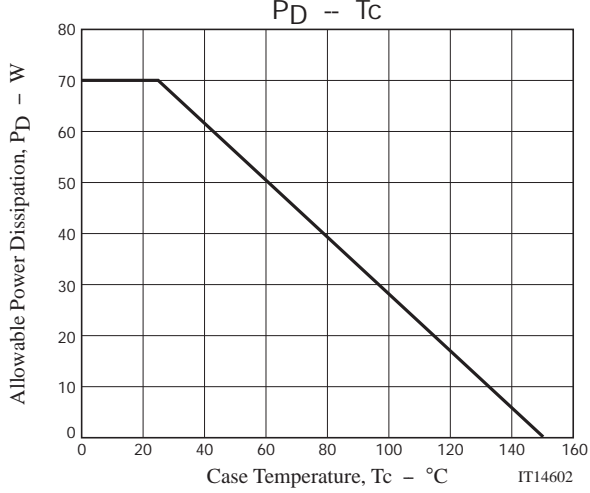
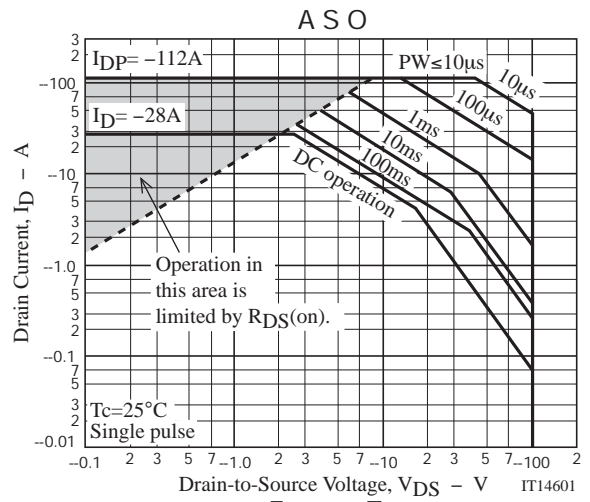
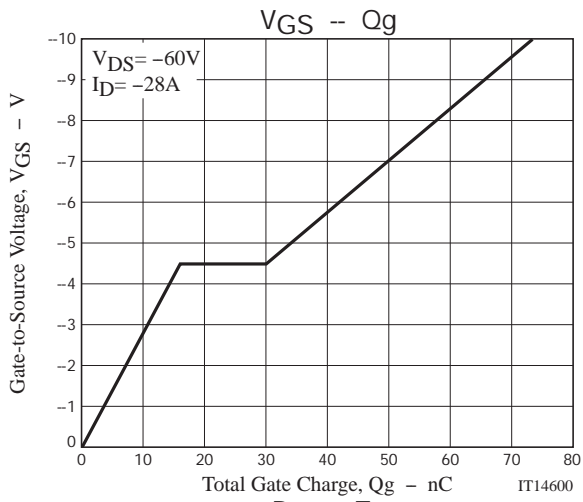
### Avalanche Resistance Test Circuit



### Ordering Information

Device	Package	Shipping	memo
ATP301-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





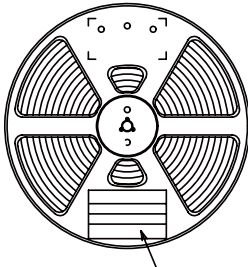
Taping Specification

ATP301-TL-H

1. Packing Format (TL)

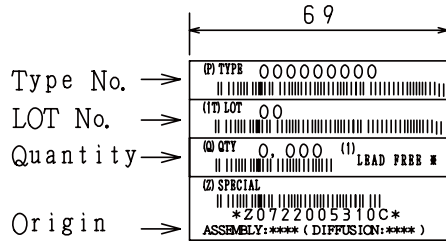
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



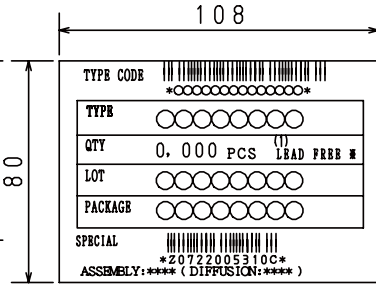
Reel label

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.

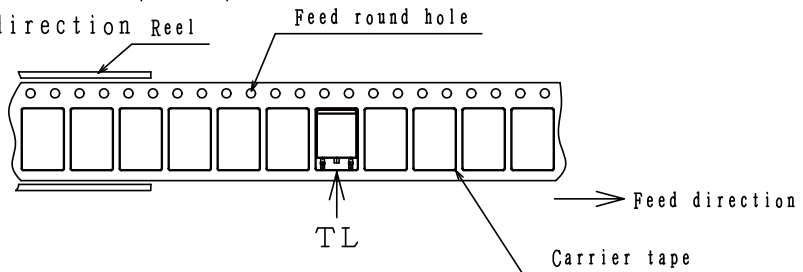
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

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

# ATP301

## Outline Drawing

ATP301-TL-H



## Land Pattern Example



Note on usage : Since the ATP301 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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