



# ATP104 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- Slim package
- Halogen free compliance
- Large current
- 4.5V drive
- Protection diode in

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-75	A
Drain Current (PW≤10μs)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-225	A
Allowable Power Dissipation	P <sub>D</sub>	Tc=25°C	60	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E <sub>AS</sub>		130	mJ
Avalanche Current *2	I <sub>AV</sub>		38	A

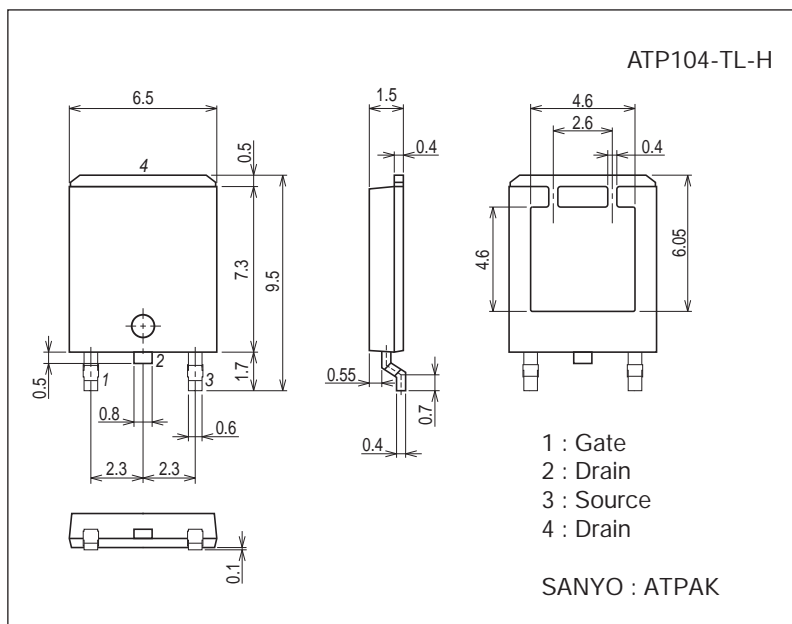
Note : \*1 V<sub>DD</sub>=15V, L=100μH, I<sub>AV</sub>=38A

\*2 L≤100μH, Single pulse

### Package Dimensions

unit : mm (typ)

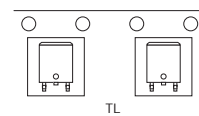
7057-001



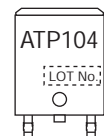
### Product & Package Information

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

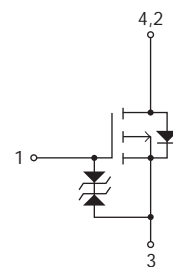
### Packing Type: TL



### Marking



### Electrical Connection

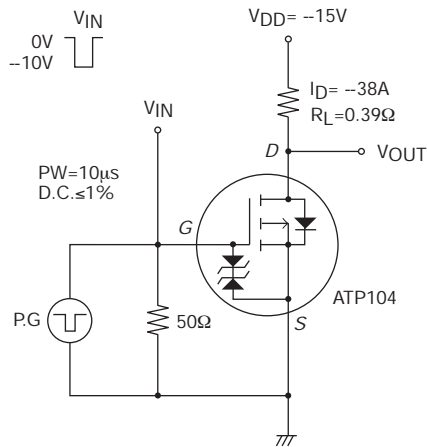


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## Electrical Characteristics at Ta=25°C

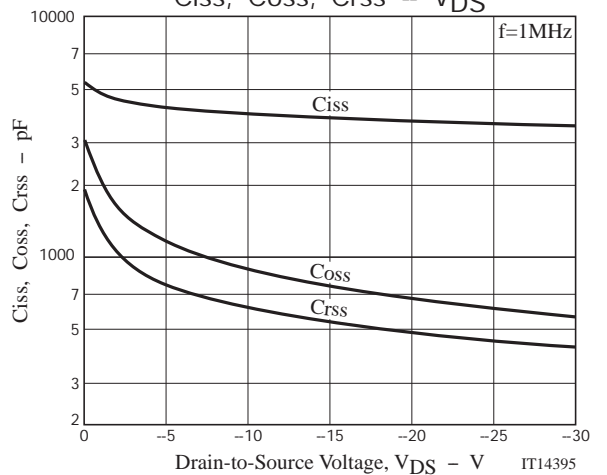
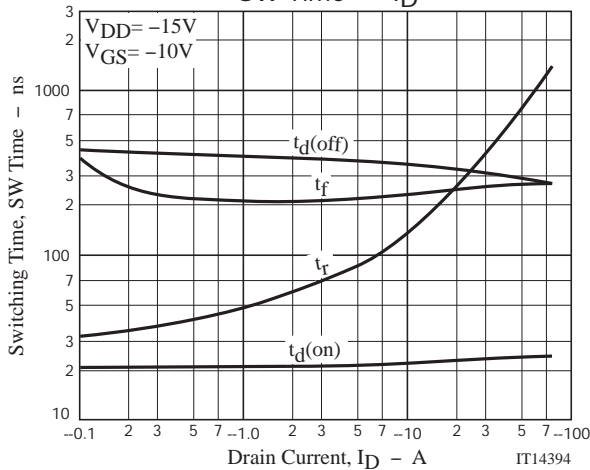
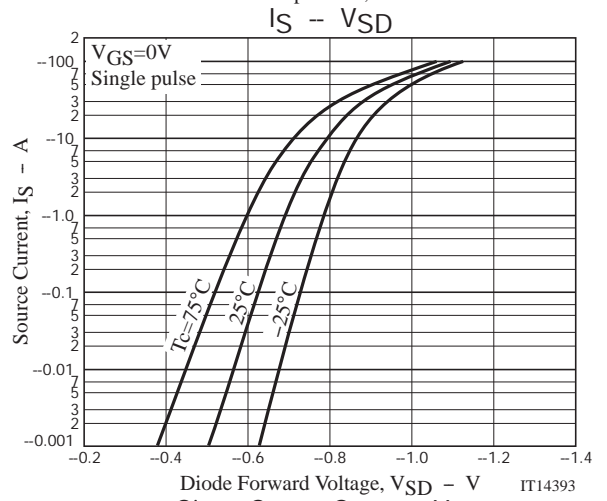
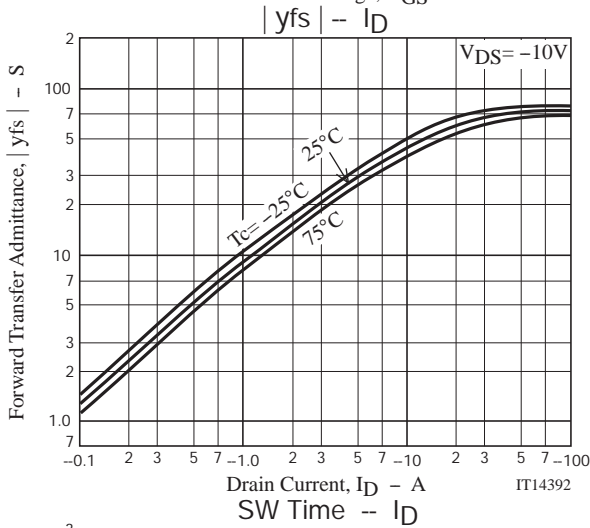
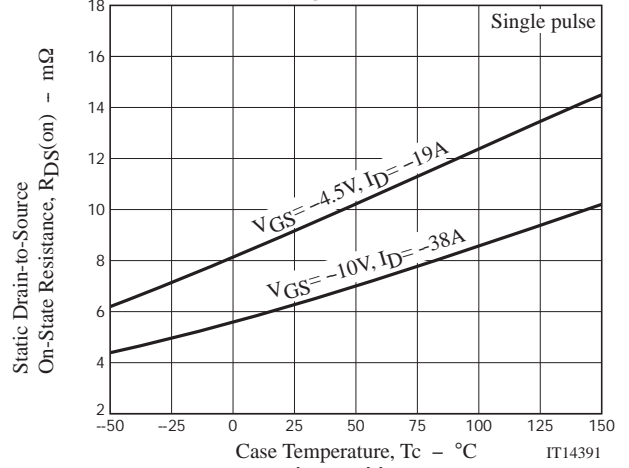
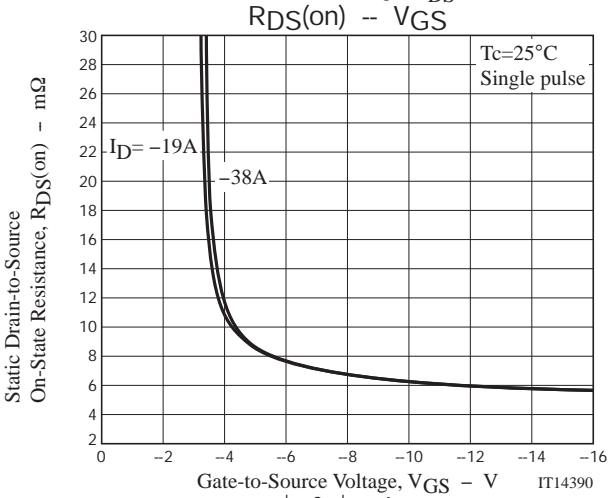
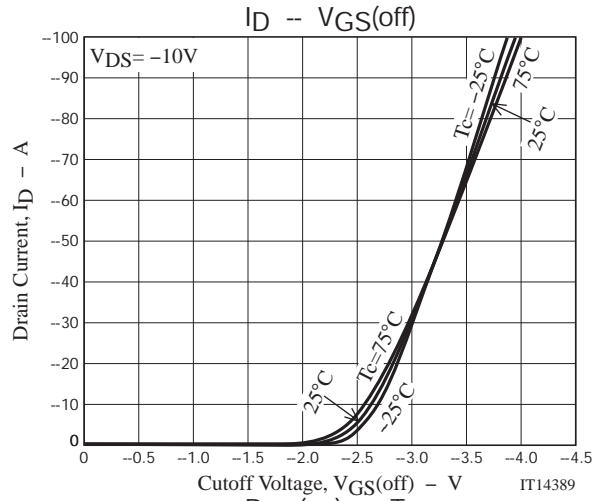
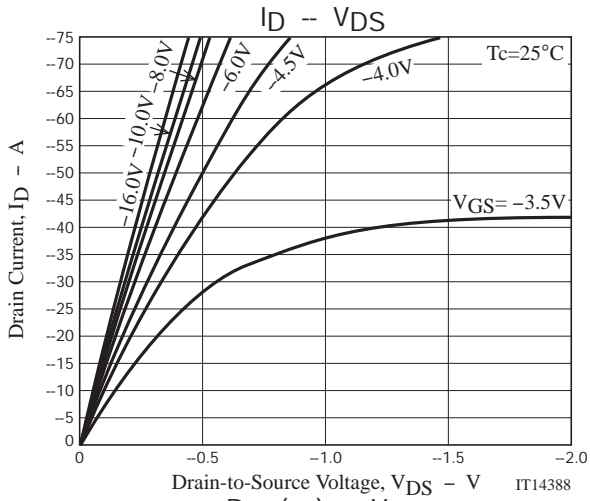
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-38A		70		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-38A, V <sub>GS</sub> =-10V		6.4	8.4	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-19A, V <sub>GS</sub> =-4.5V		9.6	13.5	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, f=1MHz		3950		pF
Output Capacitance	C <sub>oss</sub>			880		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			610		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			24		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		520		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			290		ns
Fall Time	t <sub>f</sub>			260		ns
Total Gate Charge	Q <sub>g</sub>			76		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-75A		18		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			13		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> =-75A, V <sub>GS</sub> =0V		-1.02	-1.5

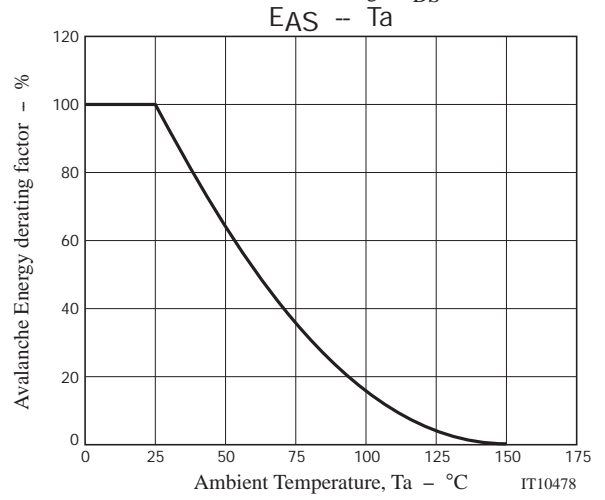
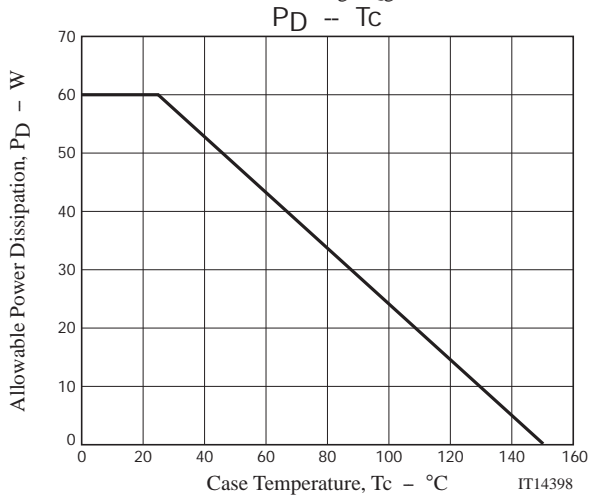
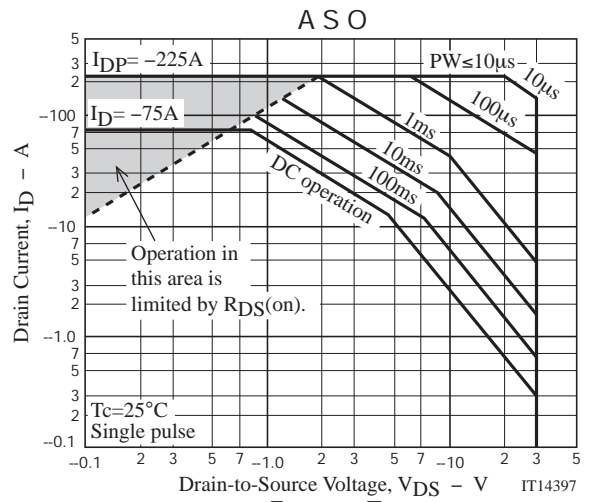
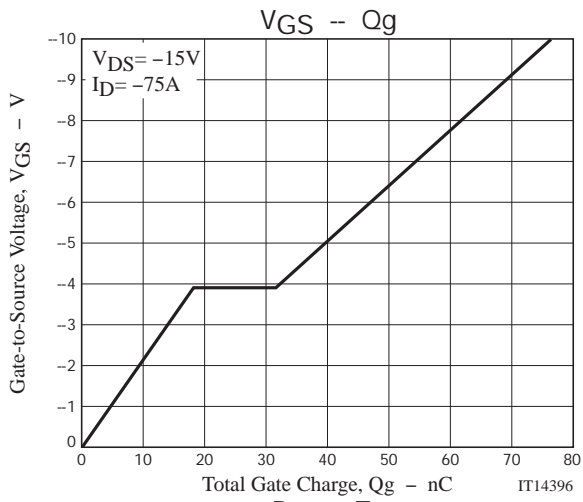
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ATP104-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





Taping Specification

ATP104-TL-H

1. Packing Format (TL)

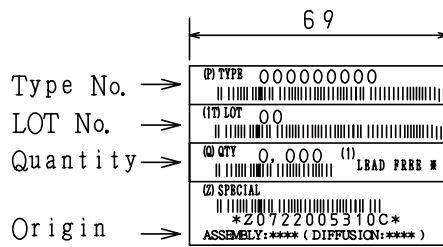
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



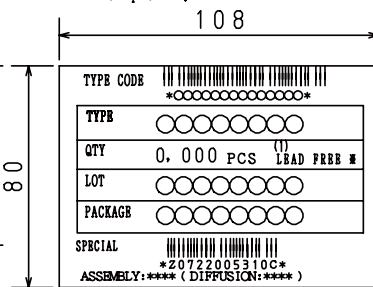
Reel label

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.



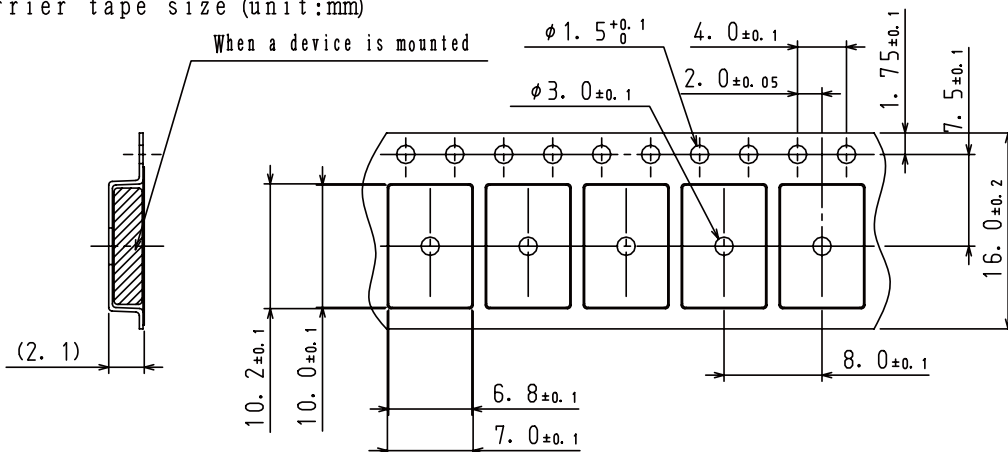
NOTE (1)

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

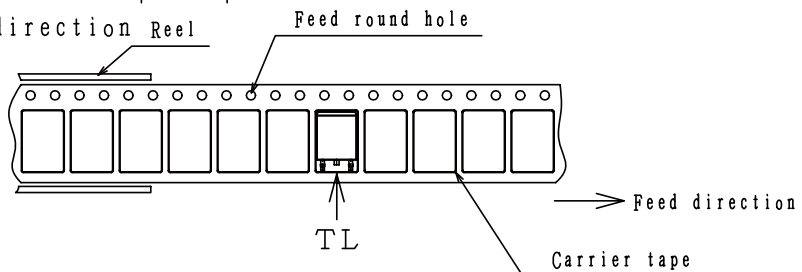
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction Reel

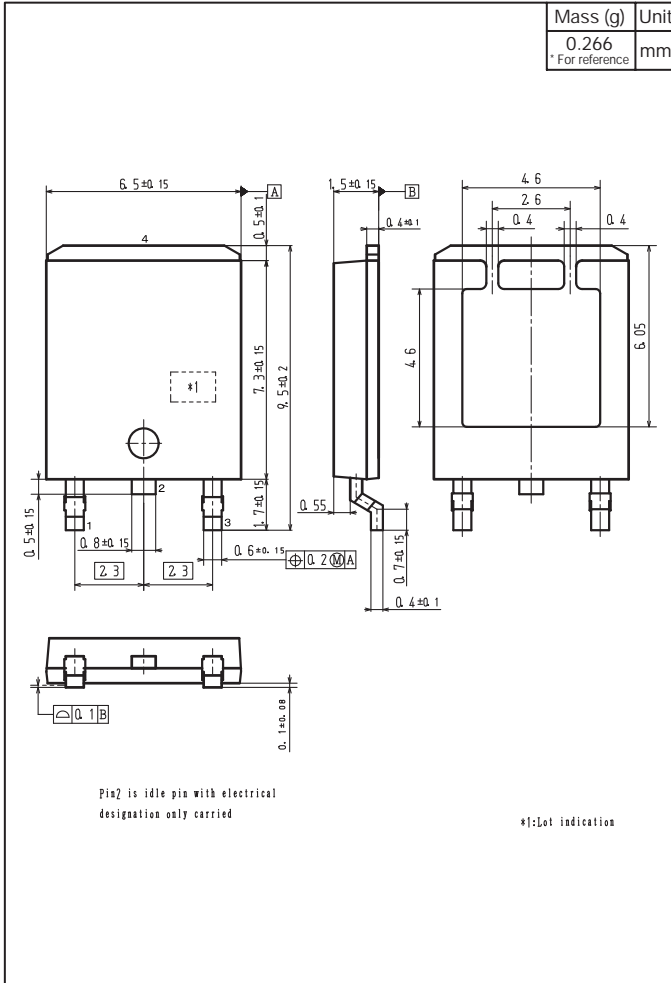


The one electrode terminals on feed hole side...TL

# ATP104

## Outline Drawing

ATP104-TL-H



## Land Pattern Example



Note on usage : Since the ATP104 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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