



P-Channel Silicon MOSFET

# ATP114 — General-Purpose Switching Device Applications

## Features

- ON-resistance  $R_{DS(on)1}=12m\Omega$ (typ.)
- 4V drive
- Protection diode in
- 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	$V_{DSS}$		-60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-55	A
Drain Current ( $PW \leq 10\mu s$ )	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-165	A
Allowable Power Dissipation	$P_D$	$T_c=25^\circ C$	60	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	$E_{AS}$		100	mJ
Avalanche Current *2	$I_{AV}$		-28	A

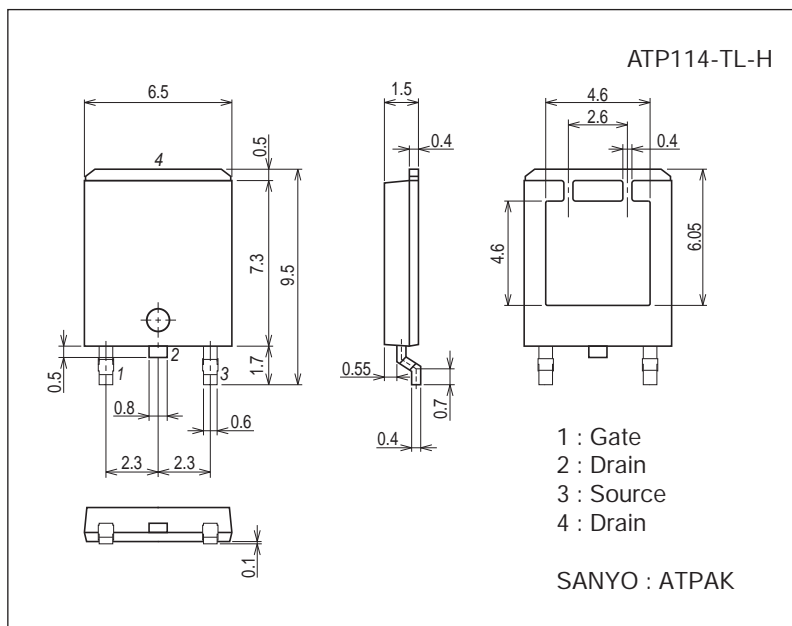
Note : \*1  $V_{DD}=-15V$ ,  $L=200\mu H$ ,  $I_{AV}=-28A$

\*2  $L \leq 100\mu H$ , Single pulse

## Package Dimensions

unit : mm (typ)

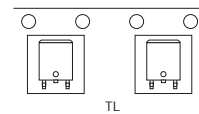
7057-001



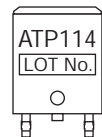
## Product & Package Information

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

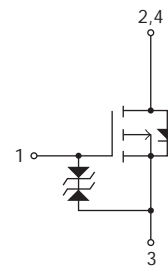
## Packing Type: TL



## Marking



## Electrical Connection

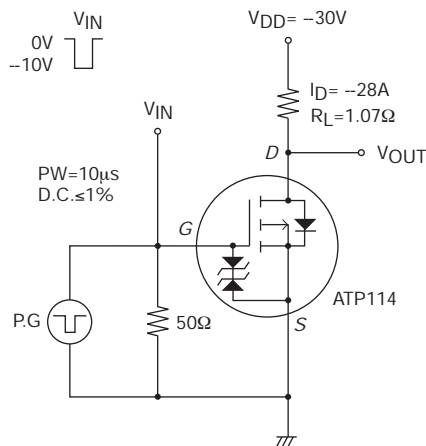


# ATP114

## Electrical Characteristics at Ta=25°C

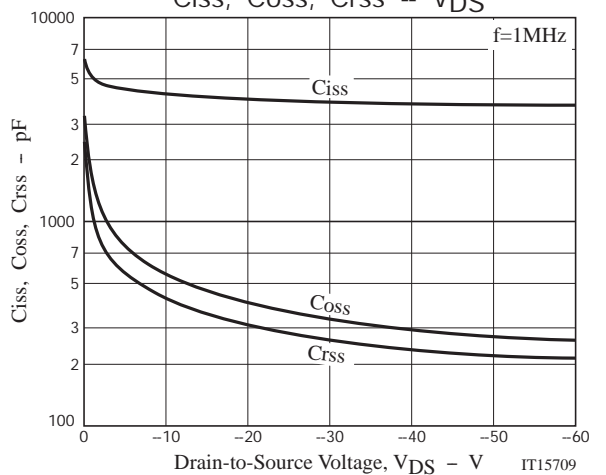
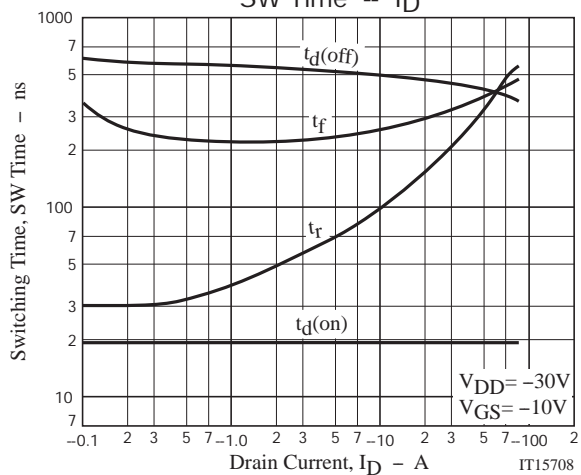
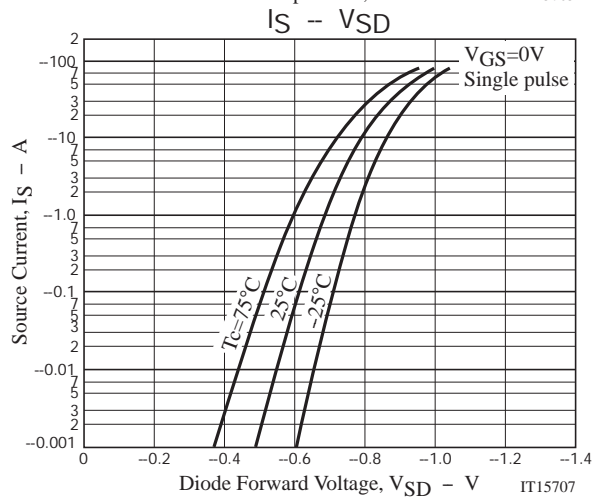
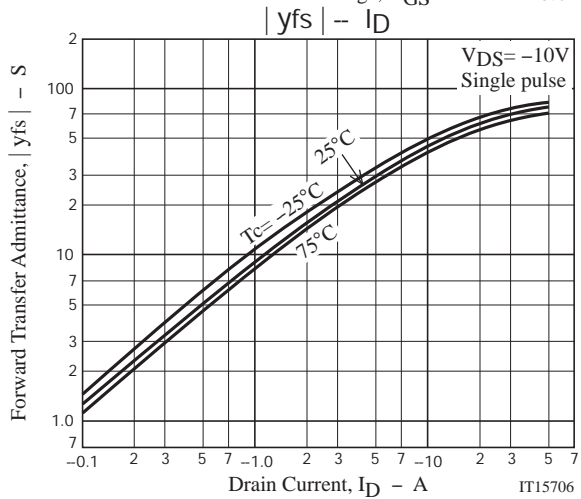
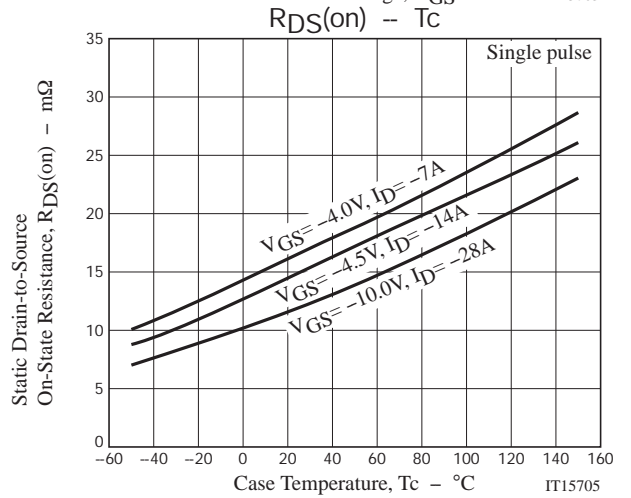
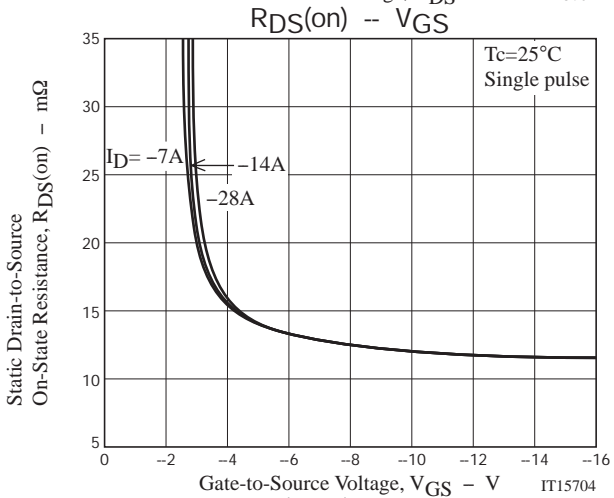
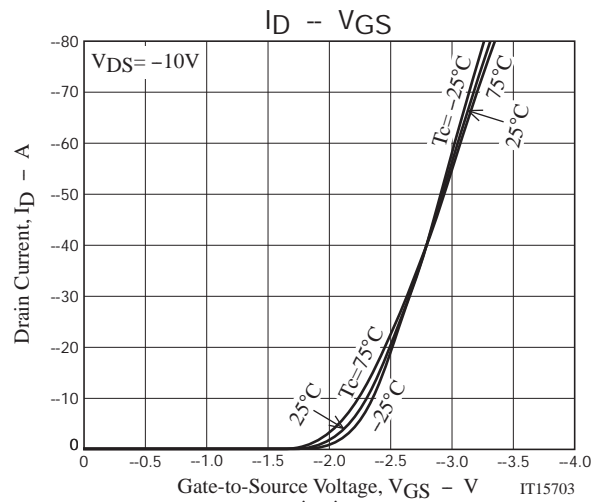
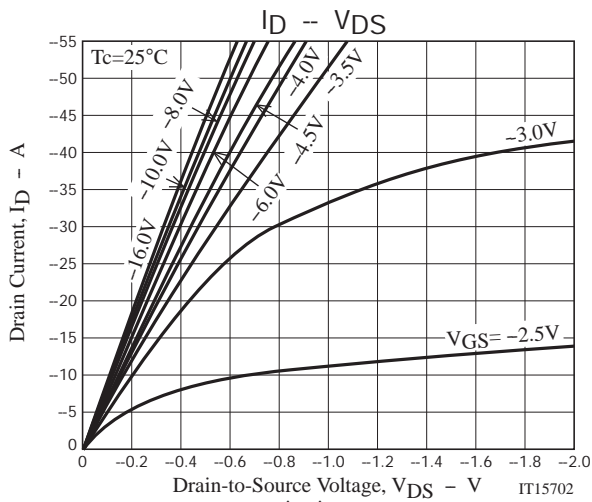
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <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> =-28A		65		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-28A, V <sub>GS</sub> =-10V		12	16	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-14A, V <sub>GS</sub> =-4.5V		15	21	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =-7A, V <sub>GS</sub> =-4V		16.5	24	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-20V, f=1MHz		4000		pF
Output Capacitance	C <sub>oss</sub>			400		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			315		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			19		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		200		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			450		ns
Fall Time	t <sub>f</sub>			300		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-55Ap		92		nC
Gate-to-Source Charge	Q <sub>gs</sub>			15		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			15.5		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> =-55A, V <sub>GS</sub> =0V		-0.95	-1.5

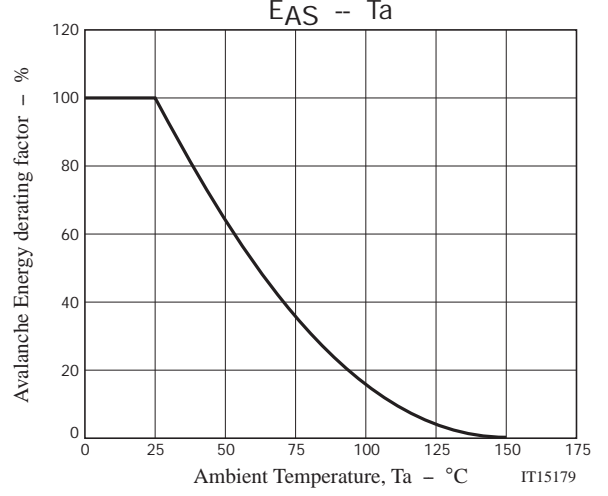
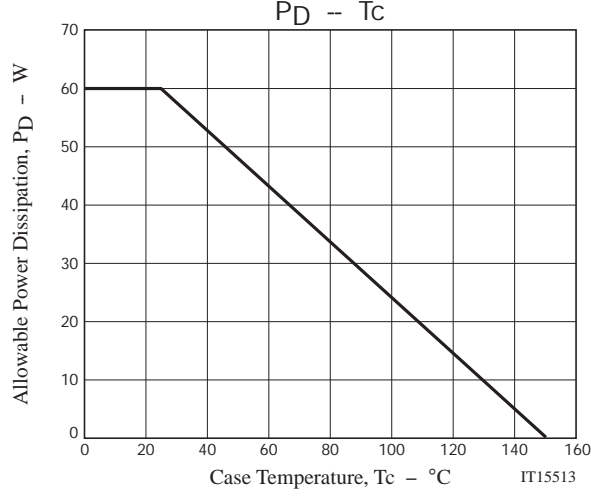
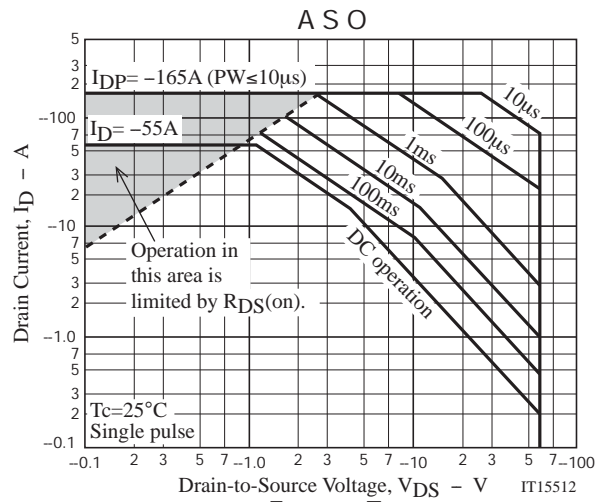
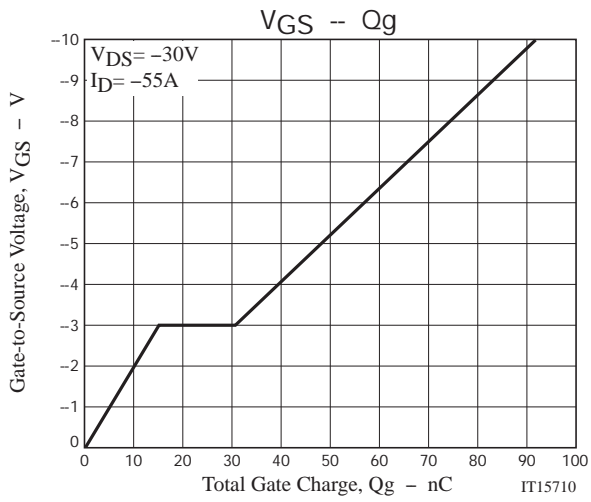
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ATP114-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





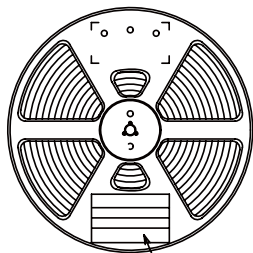
Taping Specification

ATP114-TL-H

1. Packing Format (TL)

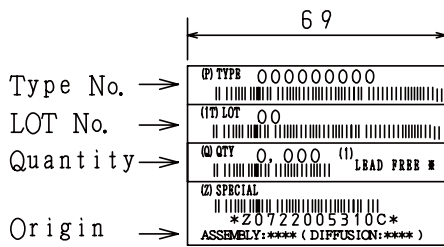
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



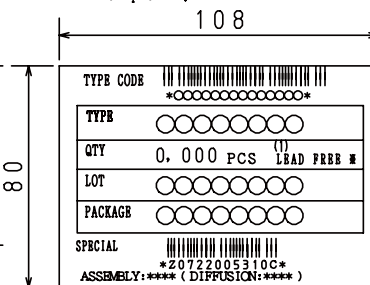
Reel label

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.



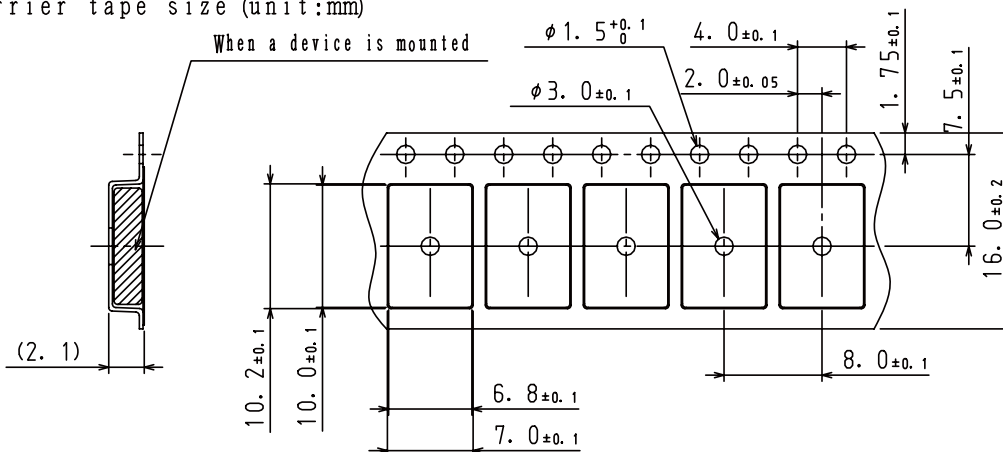
NOTE (1)

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

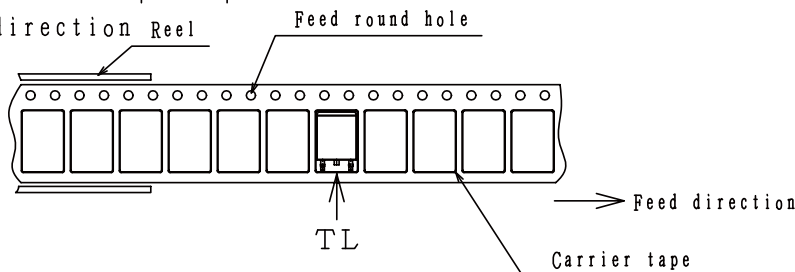
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

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

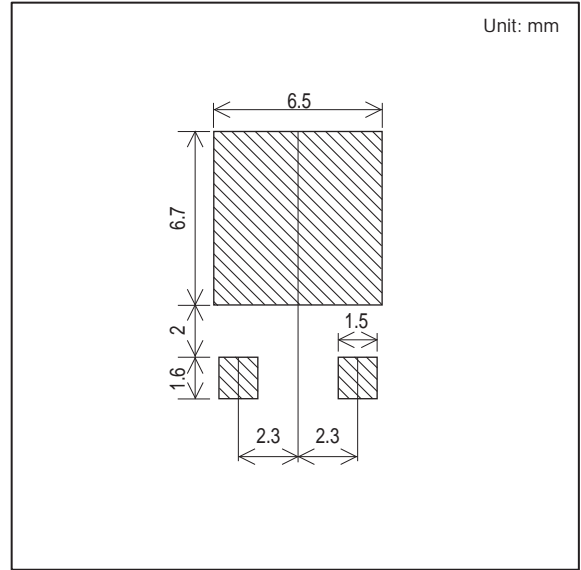
# ATP114

## Outline Drawing

ATP114-TL-H



## Land Pattern Example



Note on usage : Since the ATP114 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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