



ATP404 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=5.5m\Omega$ (typ.)
- 4.5V drive
- Input capacitance $C_{iss}=6400pF$ (typ.)
- Halogen free compliance

Specifications

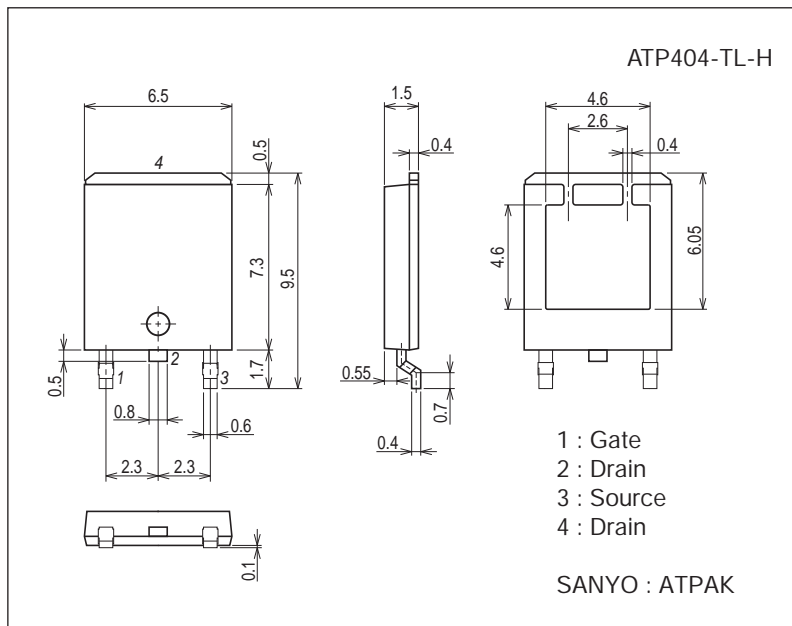
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		95	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	380	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}		214	mJ
Avalanche Current *2	I_{AV}		48	A

Note : *1 $V_{DD}=30V$, $L=100\mu H$, $I_{AV}=48A$
 *2 $L \leq 100\mu H$, Single pulse

Package Dimensions

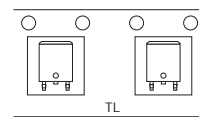
unit : mm (typ)
7057-001



Product & Package Information

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

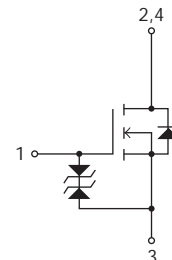
Packing Type: TL



Marking



Electrical Connection

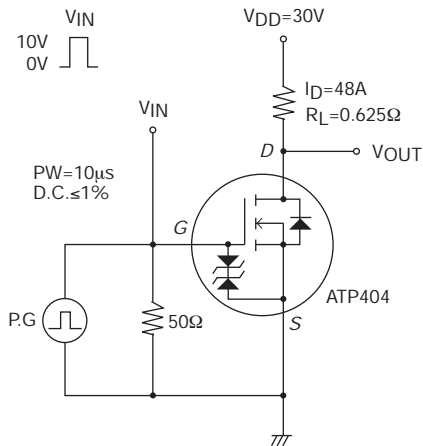


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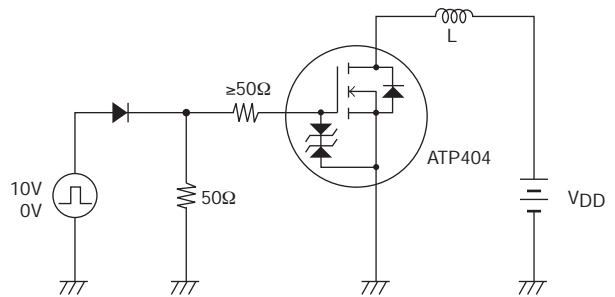
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=60V, VGS=0V			10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=48A		100		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=48A, VGS=10V		5.5	7.2	mΩ
	RDS(on)2	ID=48A, VGS=4.5V		7.5	10.5	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		6400		pF
Output Capacitance	Coss			490		pF
Reverse Transfer Capacitance	Crss			380		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		53		ns
Rise Time	tr			640		ns
Turn-OFF Delay Time	td(off)			380		ns
Fall Time	tf			520		ns
Total Gate Charge	Qg			120		nC
Gate-to-Source Charge	Qgs	VDS=30V, VGS=10V, ID=95A		25		nC
Gate-to-Drain "Miller" Charge	Qgd			25		nC
Diode Forward Voltage	VSD	IS=95A, VGS=0V		0.95	1.2	V

Switching Time Test Circuit

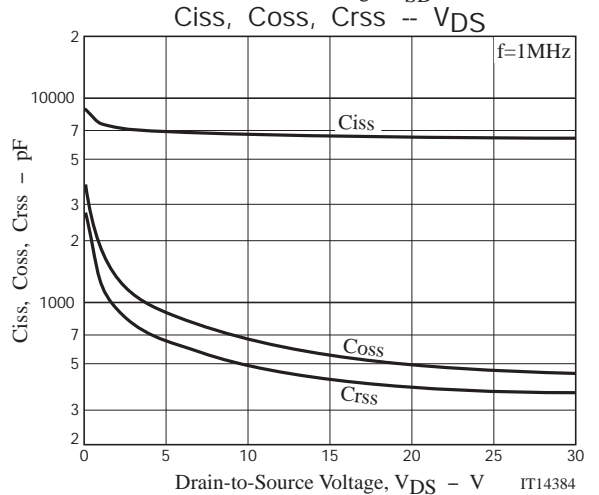
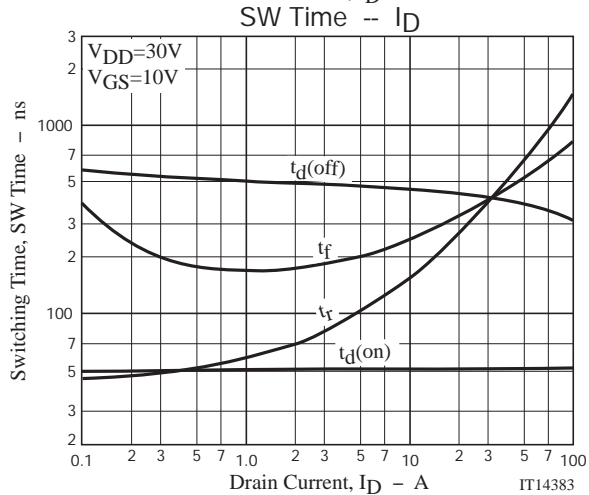
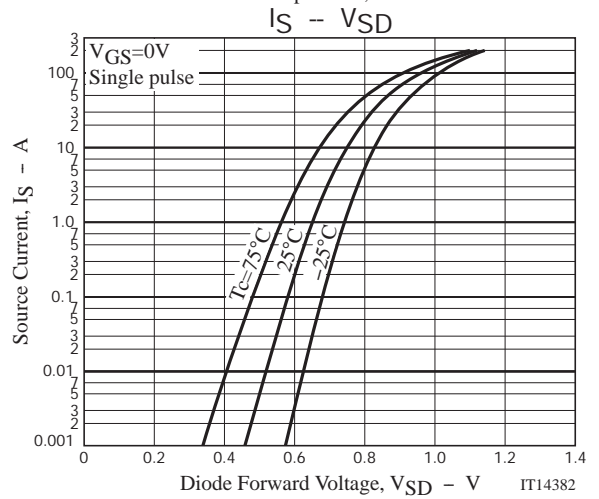
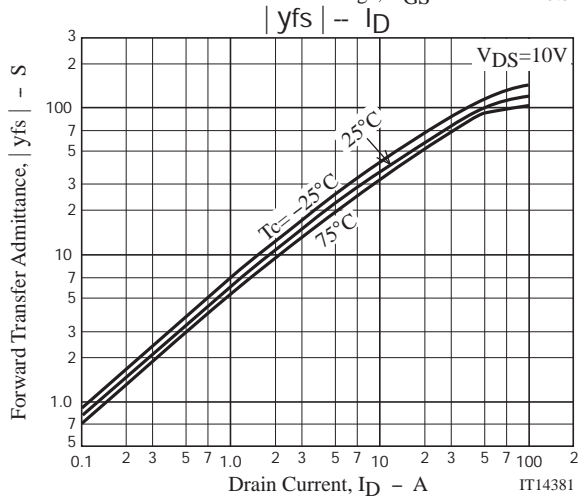
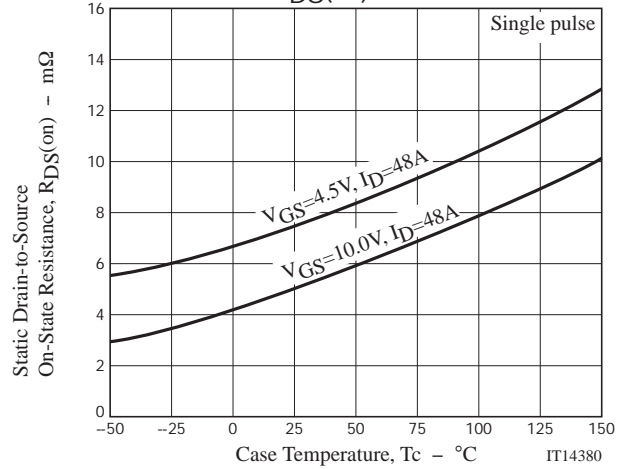
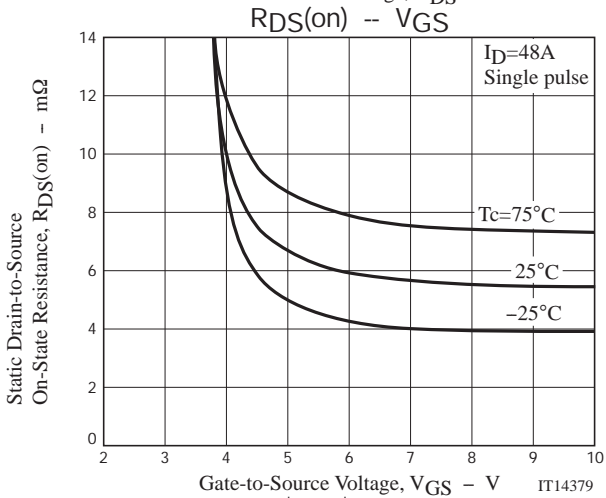
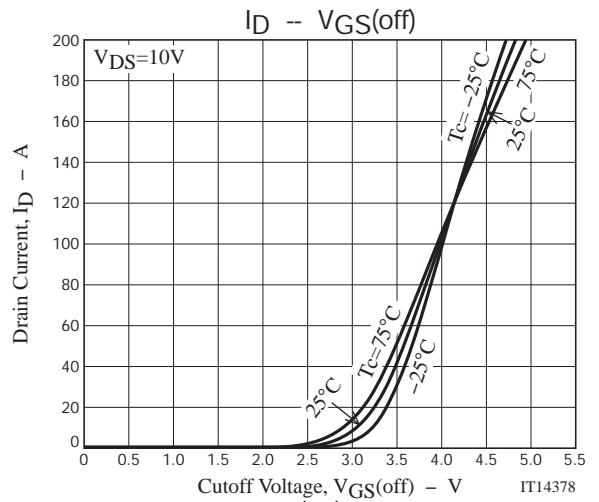
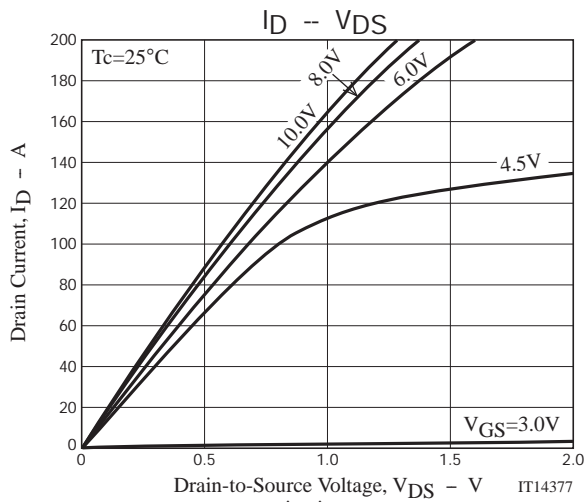


Avalanche Resistance Test Circuit

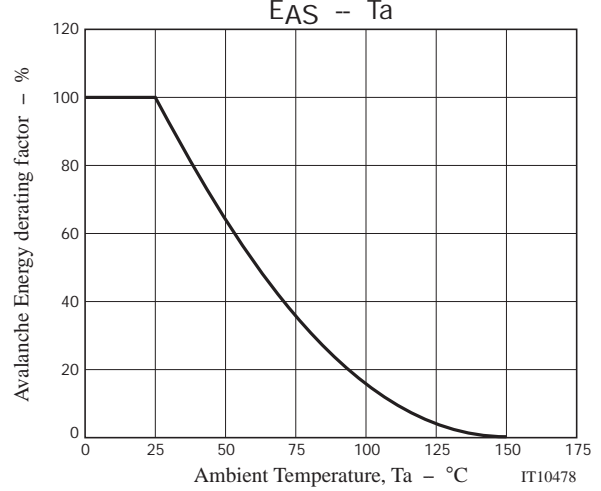
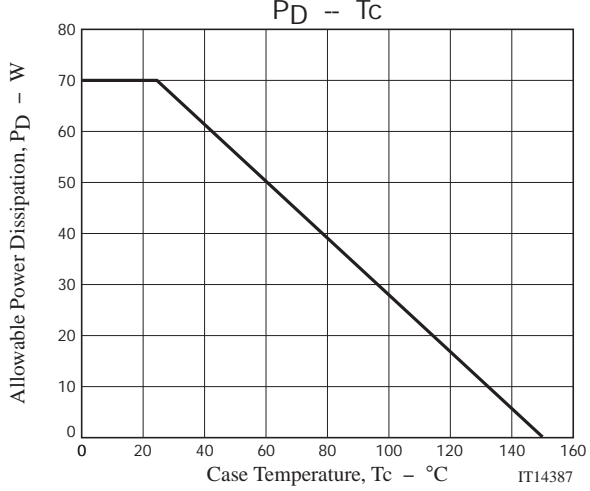
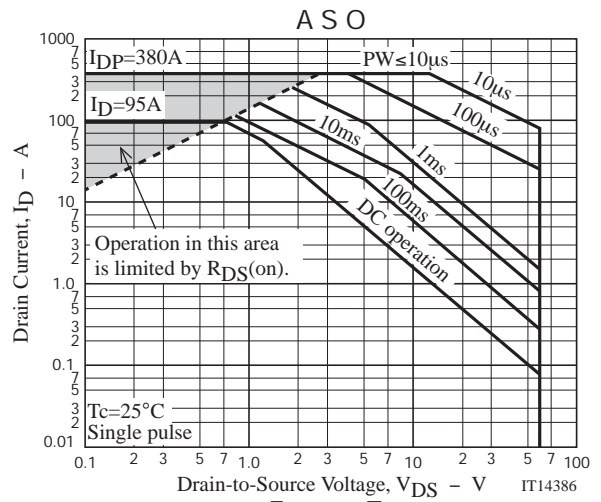
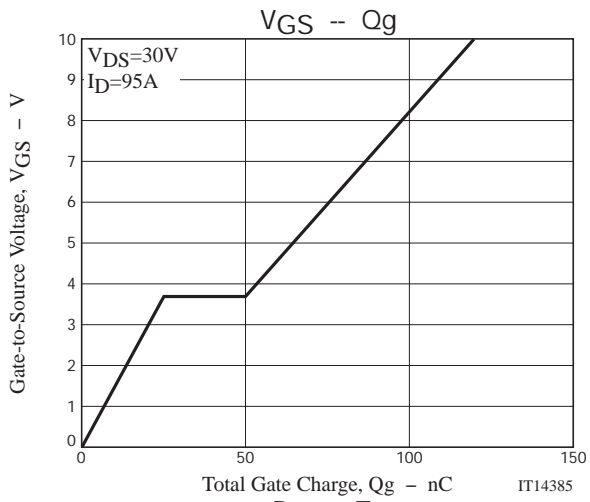


Ordering Information

Device	Package	Shipping	memo
ATP404-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free



ATP404



Taping Specification

ATP404-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.



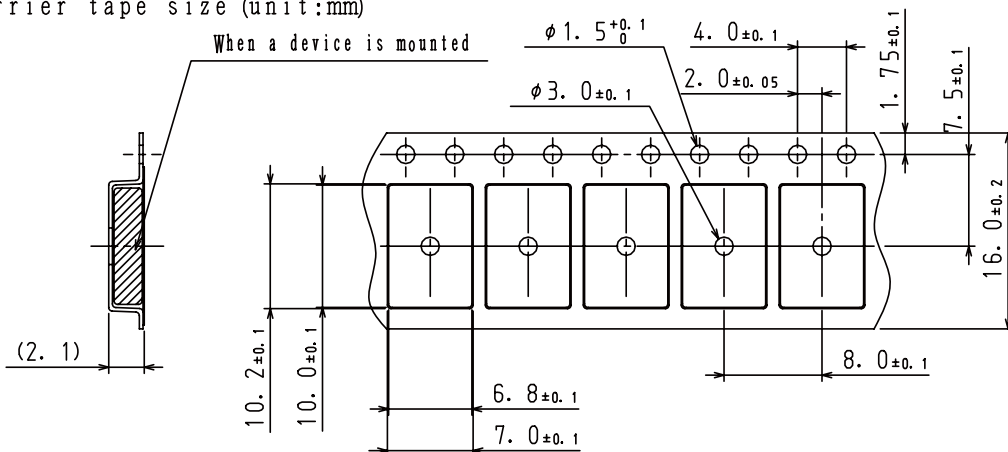
NOTE (1)

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

ATP404

Outline Drawing

ATP404-TL-H



Land Pattern Example



Note on usage : Since the ATP404 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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