



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

## ATP212 — General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- 4V drive
- Halogen free compliance
- Large current
- Slim package
- Protection diode in

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		35	A
Drain Current (PW≤10μs)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	105	A
Allowable Power Dissipation	P <sub>D</sub>	Tc=25°C	40	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>		19	mJ
Avalanche Current *2	I <sub>AV</sub>		18	A

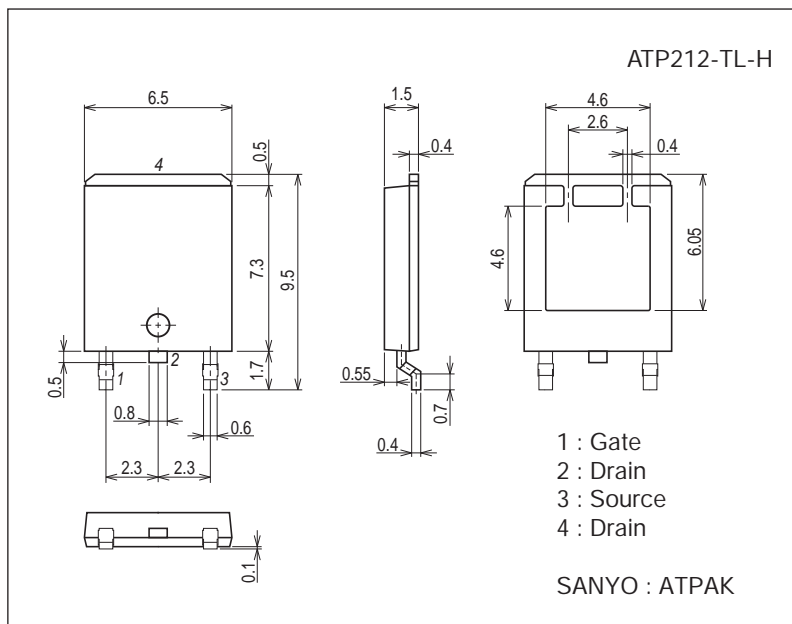
Note : \*1 V<sub>DD</sub>=10V, L=100μH, I<sub>AV</sub>=18A

\*2 L≤100μH, Single pulse

### Package Dimensions

unit : mm (typ)

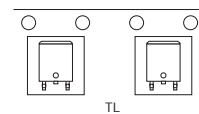
7057-001



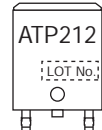
### Product & Package Information

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

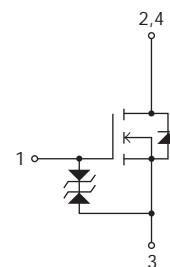
### Packing Type: TL



### Marking



### Electrical Connection

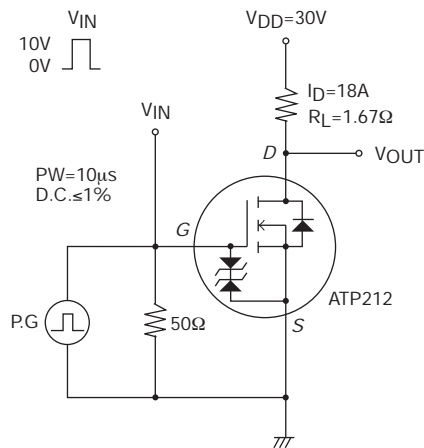


# ATP212

## Electrical Characteristics at Ta=25°C

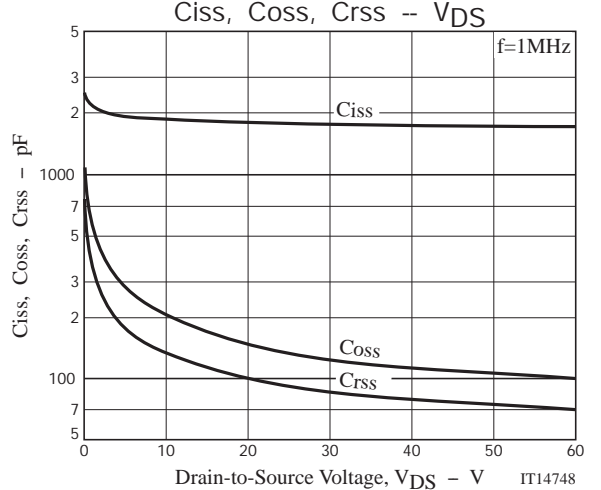
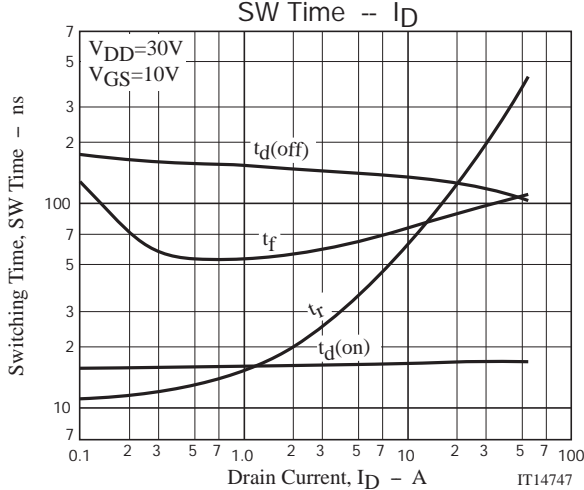
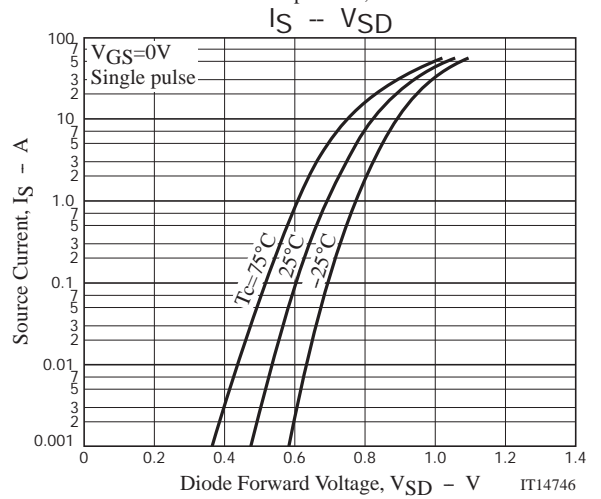
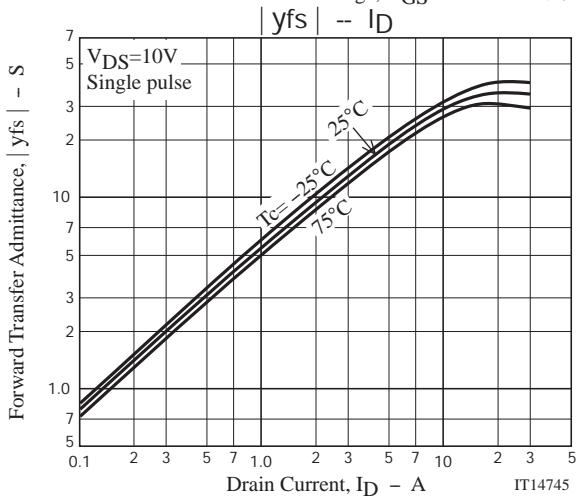
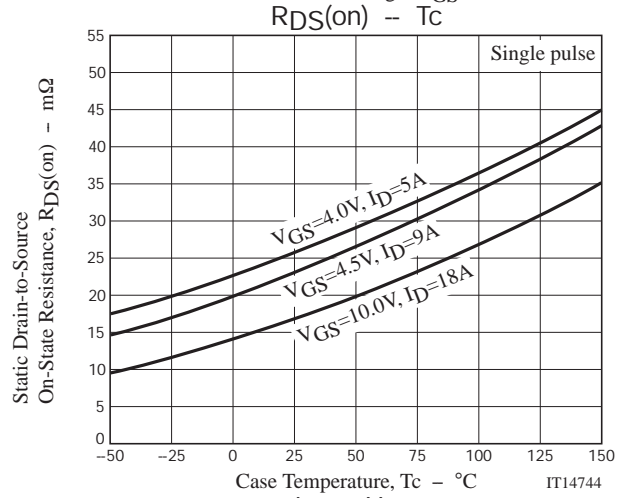
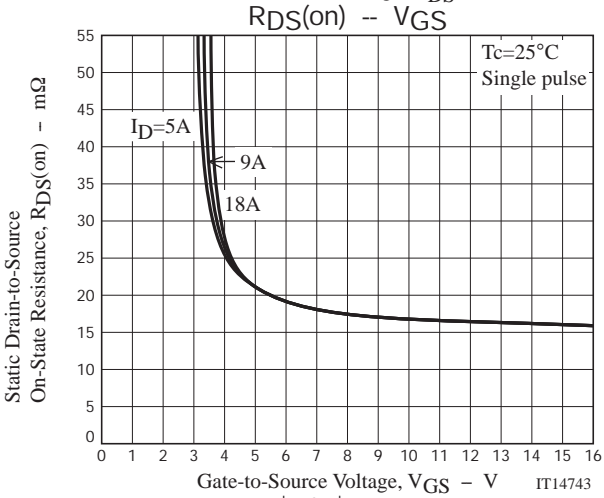
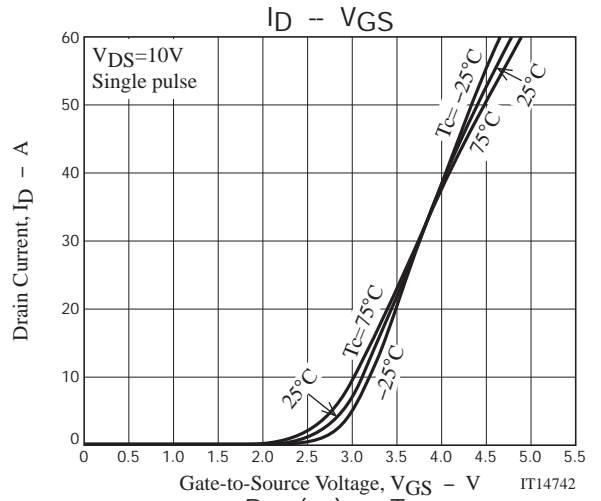
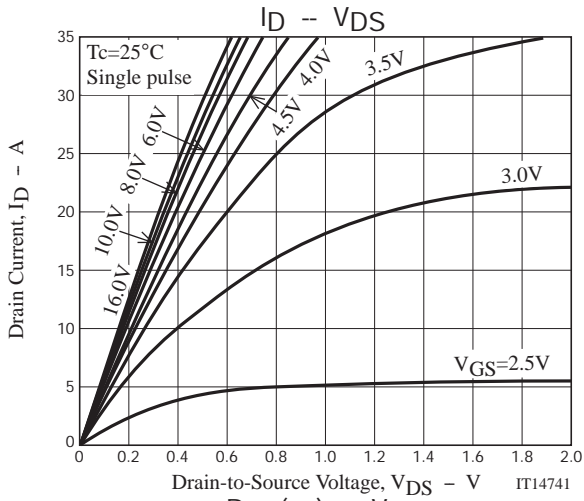
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</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> =18A		35		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =18A, V <sub>GS</sub> =10V		17	23	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =9A, V <sub>GS</sub> =4.5V		23	33	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =5A, V <sub>GS</sub> =4V		25	37	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V, f=1MHz		1820		pF
Output Capacitance	C <sub>oss</sub>			150		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			100		pF
Turn-ON Delay Time	t <sub>d(on)</sub>		See specified Test Circuit.		16	
Rise Time	t <sub>r</sub>			110		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			125		ns
Fall Time	t <sub>f</sub>			87		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =35A			34.5	
Gate-to-Source Charge	Q <sub>gs</sub>			6.5		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			6.8		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =35A, V <sub>GS</sub> =0V		0.96	1.2	V

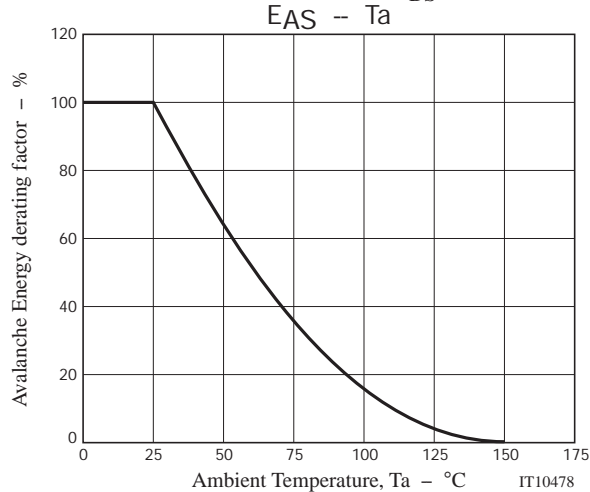
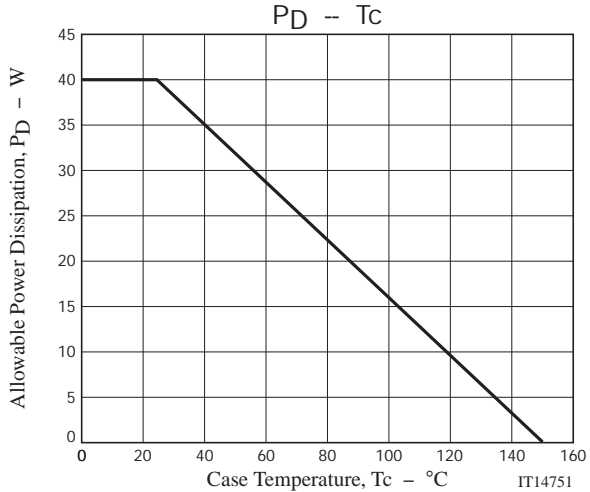
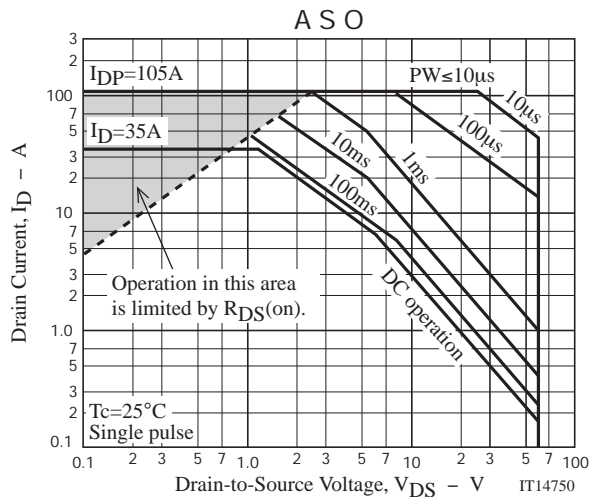
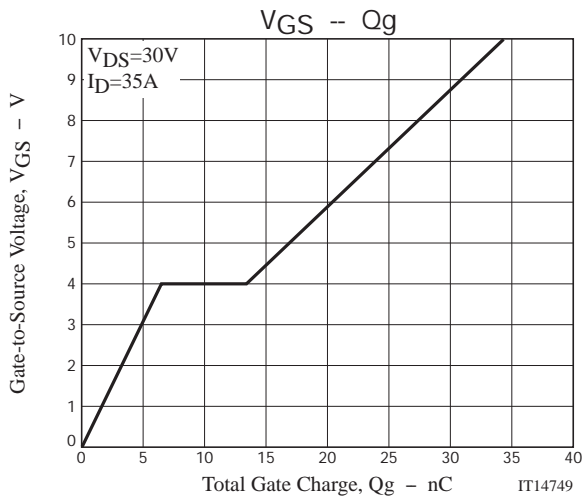
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ATP212-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





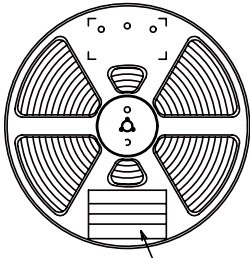
Taping Specification

ATP212-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.

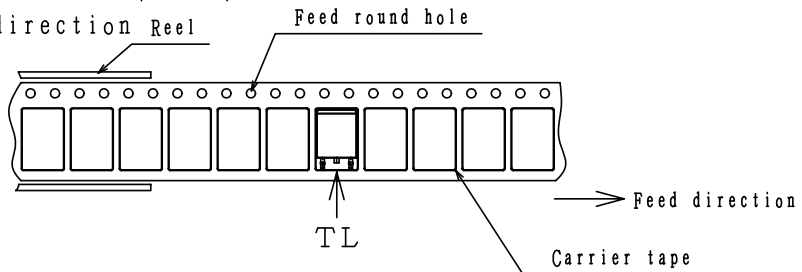
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction Reel

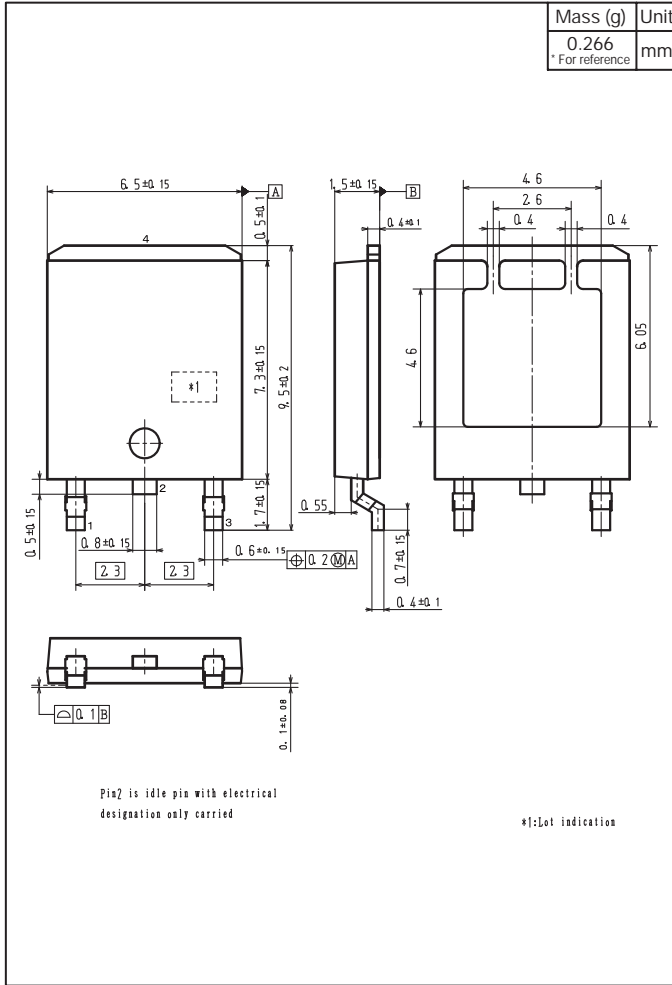


The one electrode terminals on feed hole side...TL

# ATP212

## Outline Drawing

ATP212-TL-H



## Land Pattern Example



Note on usage : Since the ATP212 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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