



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

## ATP213 — 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>		50	A
Drain Current (PW≤10μs)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	150	A
Allowable Power Dissipation	P <sub>D</sub>	Tc=25°C	50	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>		37	mJ
Avalanche Current *2	I <sub>AV</sub>		25	A

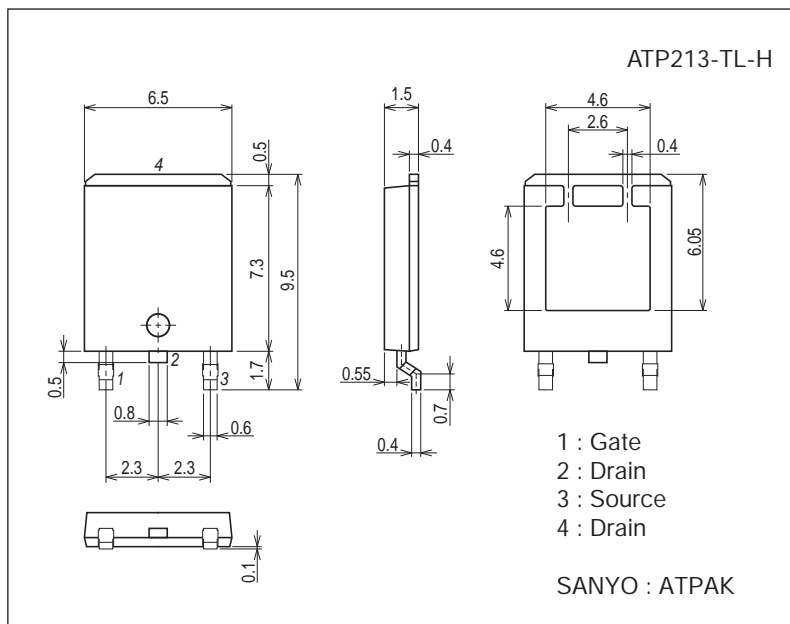
Note : \*1 V<sub>DD</sub>=10V, L=100μH, I<sub>AV</sub>=25A

\*2 L≤100μH, Single pulse

### Package Dimensions

unit : mm (typ)

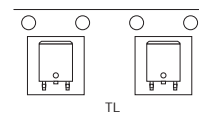
7057-001



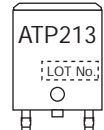
### Product & Package Information

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

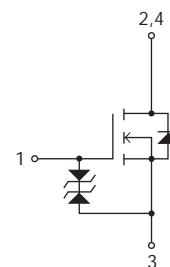
### Packing Type: TL



### Marking



### Electrical Connection

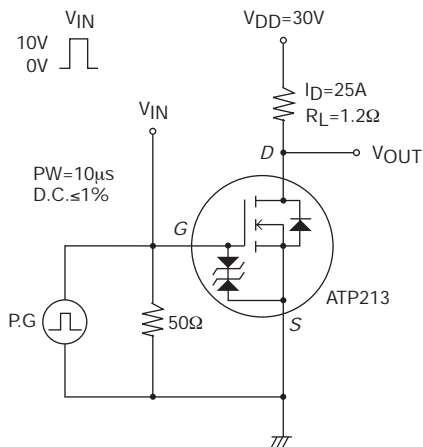


# ATP213

## Electrical Characteristics at $T_a=25^\circ\text{C}$

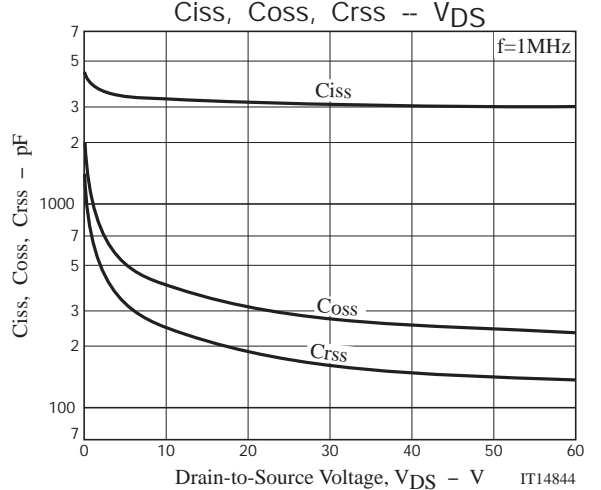
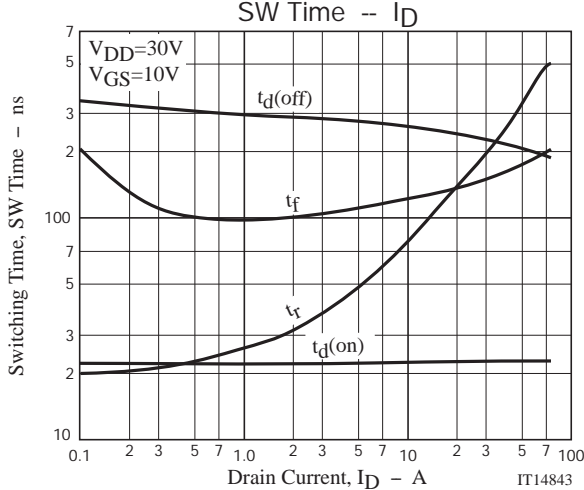
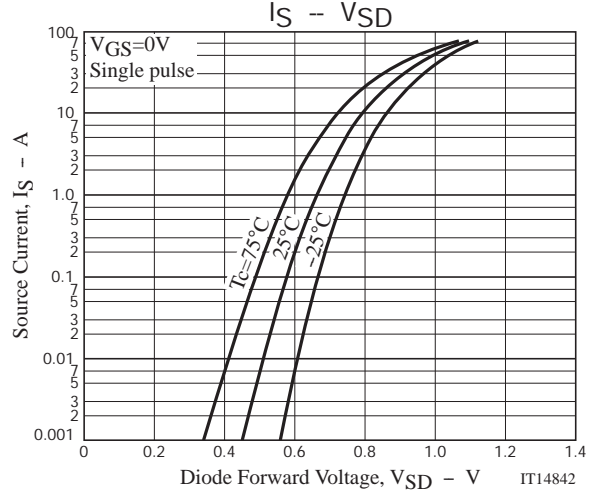
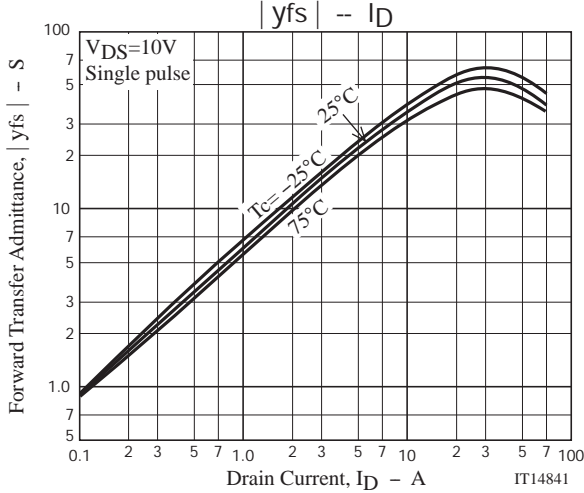
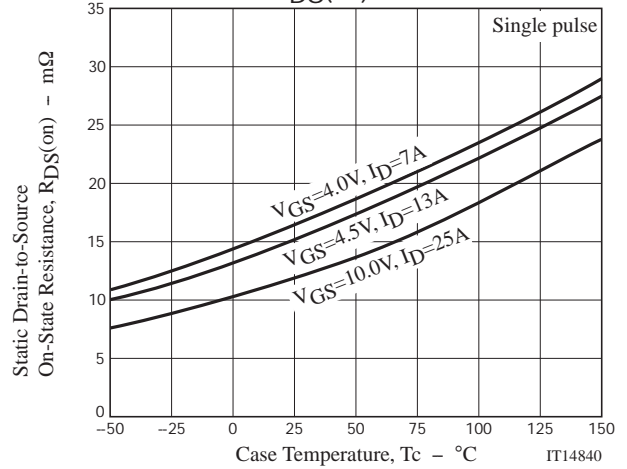
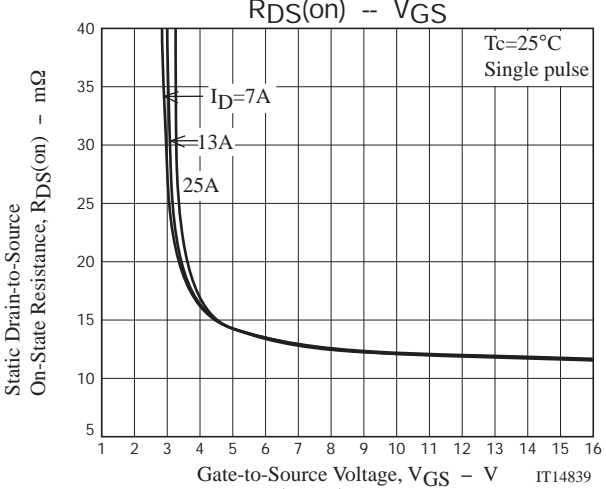
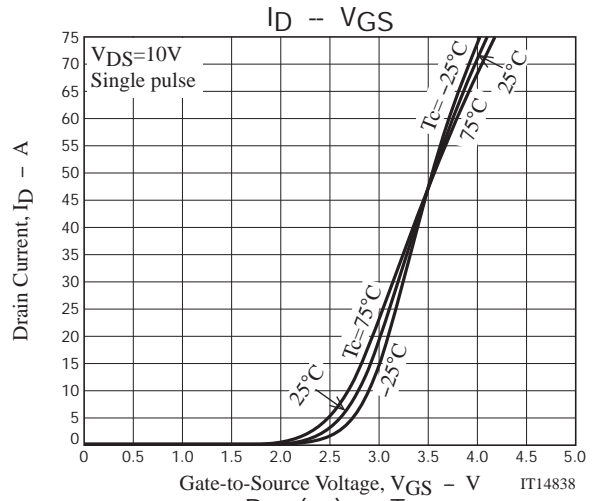
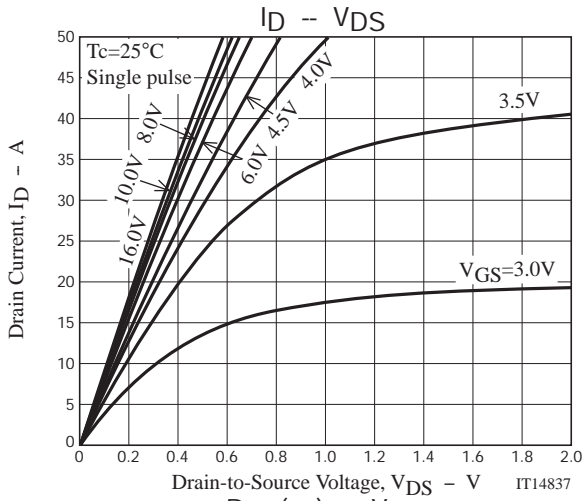
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	60			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=25\text{A}$		55		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=25\text{A}, V_{GS}=10\text{V}$		12	16	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=13\text{A}, V_{GS}=4.5\text{V}$		15	21	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=7\text{A}, V_{GS}=4\text{V}$		17	26	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		3150		pF
Output Capacitance	$C_{oss}$			310		pF
Reverse Transfer Capacitance	$C_{rss}$			190		pF
Turn-ON Delay Time	$t_{d(on)}$		See specified Test Circuit.		23	
Rise Time	$t_r$			170		ns
Turn-OFF Delay Time	$t_{d(off)}$			230		ns
Fall Time	$t_f$			150		ns
Total Gate Charge	$Q_g$	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, I_D=50\text{A}$			58	
Gate-to-Source Charge	$Q_{gs}$			10.5		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			12.5		nC
Diode Forward Voltage	$V_{SD}$	$I_S=50\text{A}, V_{GS}=0\text{V}$		1.01	1.2	V

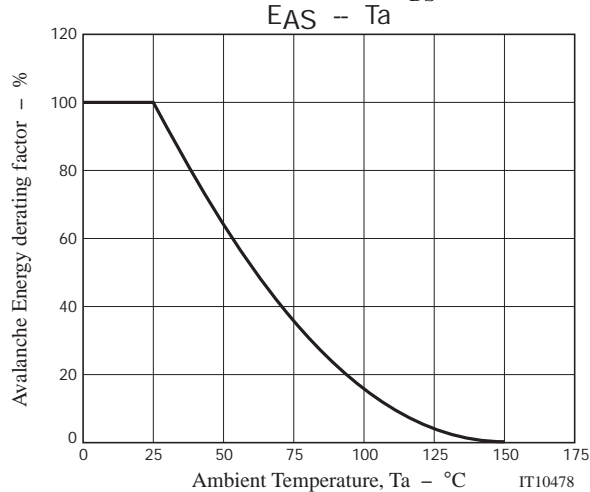
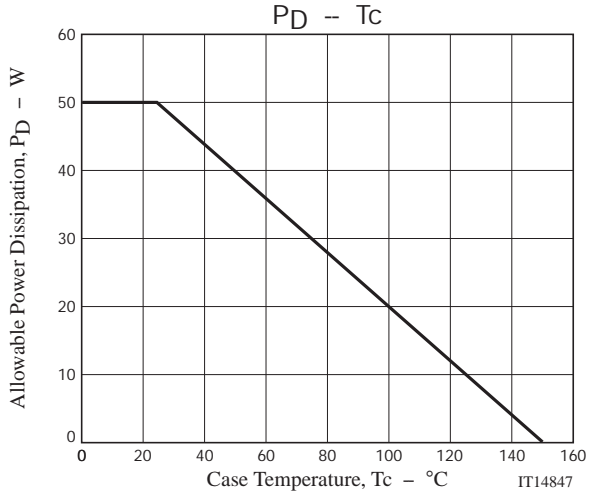
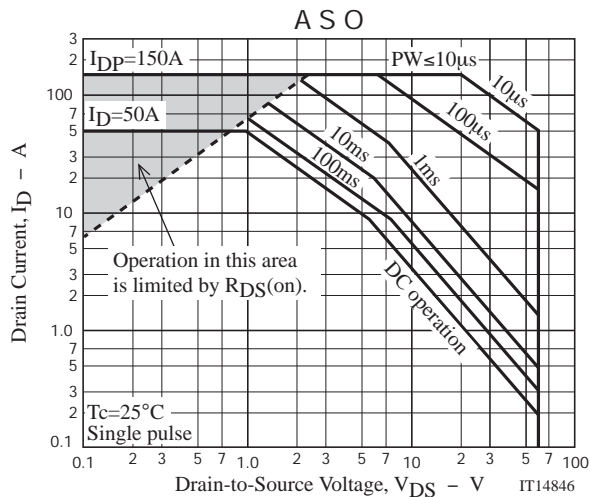
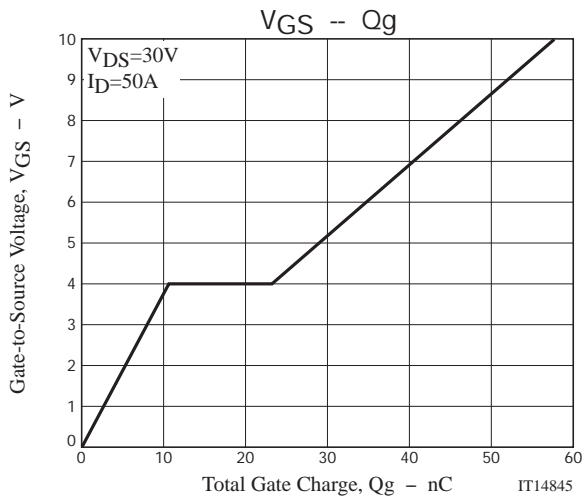
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
ATP213-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





Taping Specification

ATP213-TL-H

1. Packing Format (TL)

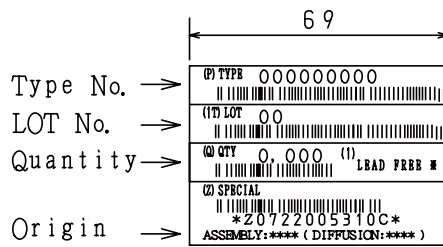
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



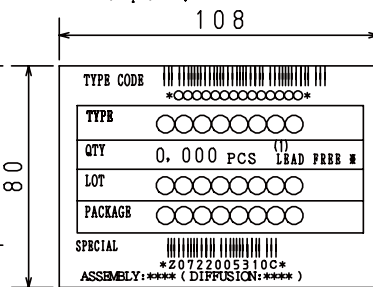
Reel label

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.



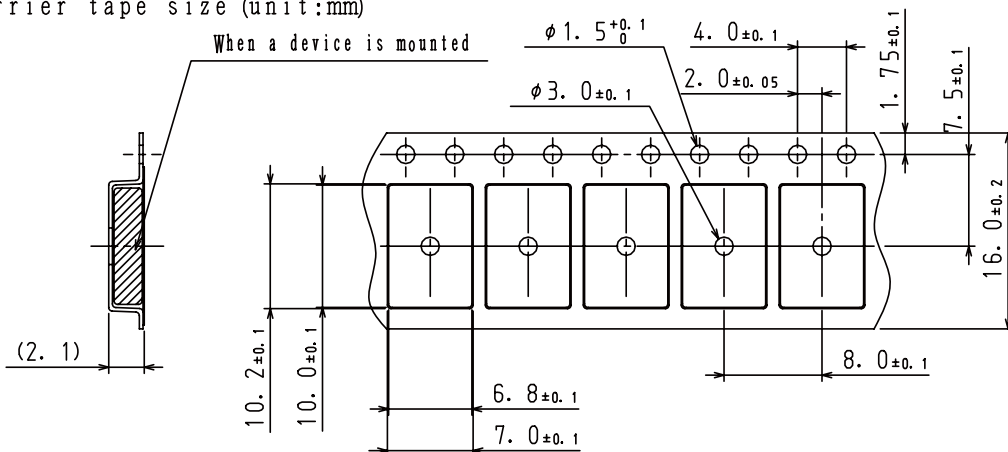
NOTE (1)

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

# ATP213

## Outline Drawing

ATP213-TL-H



## Land Pattern Example



Note on usage : Since the ATP213 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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