

P-Channel Silicon MOSFET

ATP113 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=22.5m\Omega$ (typ.)
- 4V drive
- Protection diode in
- Input Capacitance $C_{iss}=2400pF$ (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		-35	A
Drain Current ($PW \leq 10\mu s$)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-105	A
Allowable Power Dissipation	P_D	$T_c=25^\circ C$	50	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		95	mJ
Avalanche Current *2	I_{AV}		-18	A

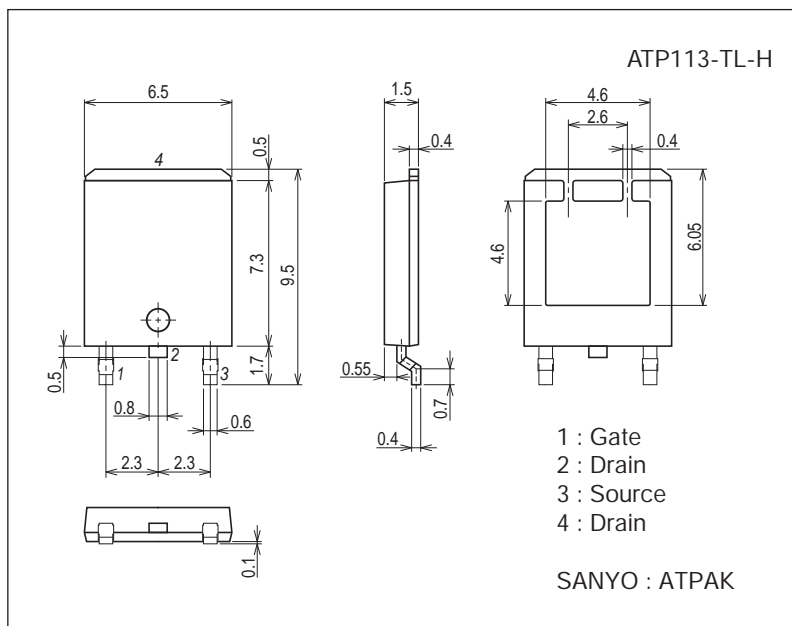
Note : *1 $V_{DD}=-10V$, $L=500\mu H$, $I_{AV}=-18A$

*2 $L \leq 500\mu H$, Single pulse

Package Dimensions

unit : mm (typ)

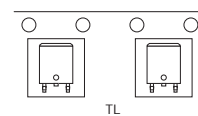
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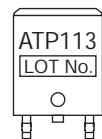
Product & Package Information

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

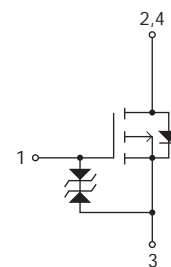
Packing Type: TL



Marking



Electrical Connection

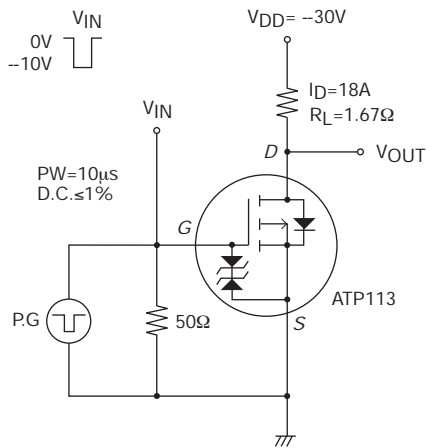


ATP113

Electrical Characteristics at Ta=25°C

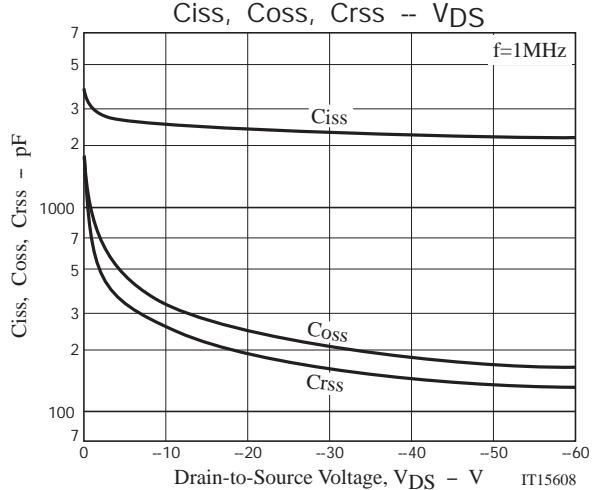
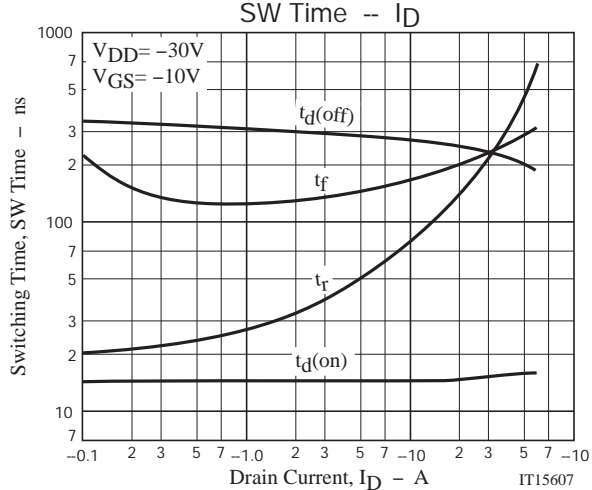
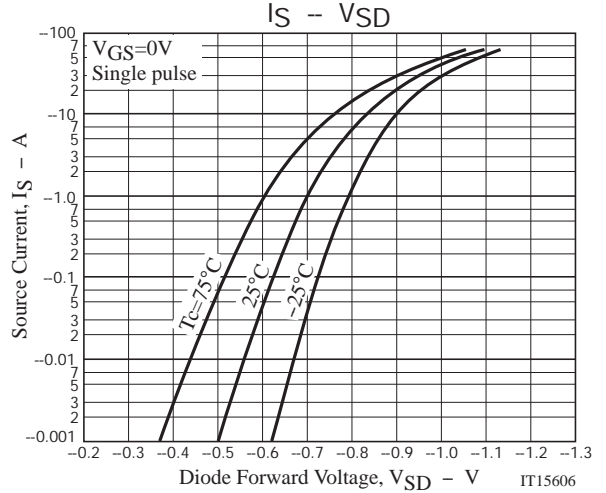
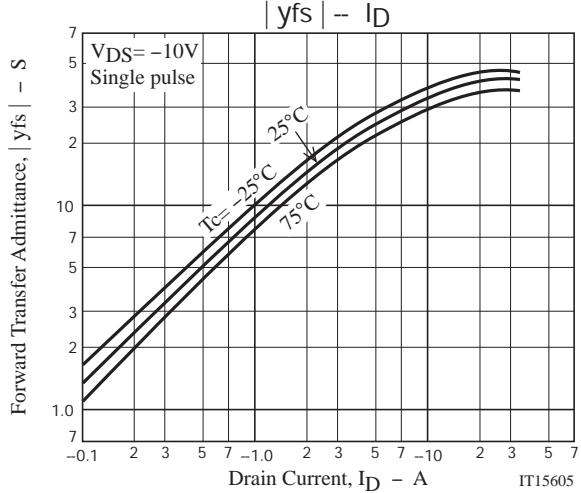
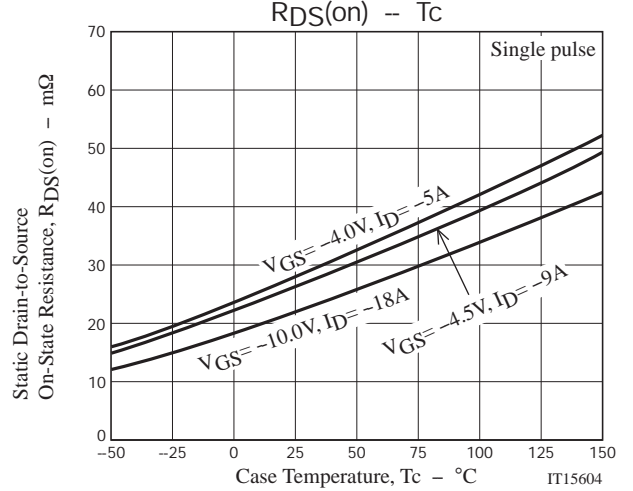
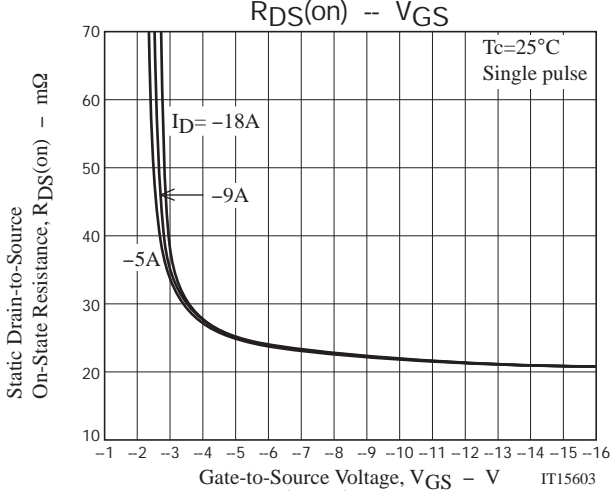
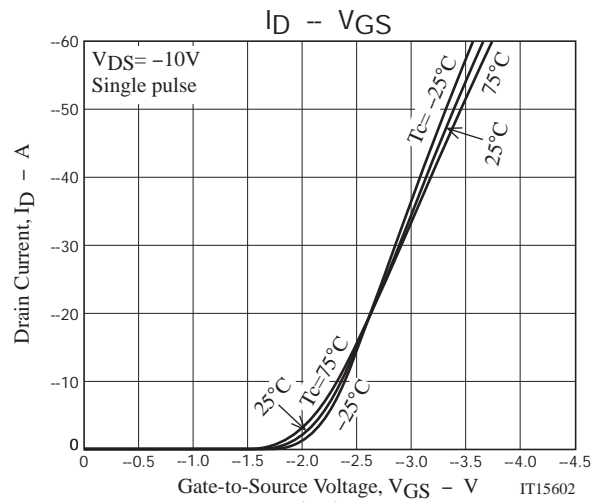
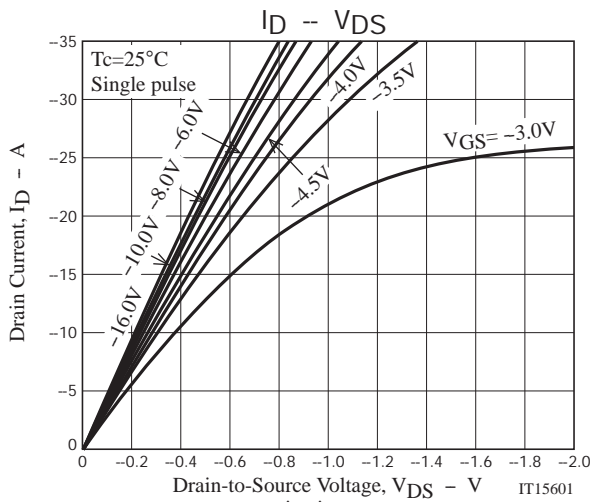
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60\text{V}, V_{GS} = 0\text{V}$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$			± 10	μA
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} $	$V_{DS} = -10\text{V}, I_D = -18\text{A}$		37		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -18\text{A}, V_{GS} = -10\text{V}$		22.5	29.5	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -9\text{A}, V_{GS} = -4.5\text{V}$		27	38	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -5\text{A}, V_{GS} = -4\text{V}$		29	44	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -20\text{V}, f = 1\text{MHz}$		2400		pF
Output Capacitance	C_{oss}			250		pF
Reverse Transfer Capacitance	C_{rss}			195		pF
Turn-ON Delay Time	$t_d(on)$			15		ns
Rise Time	t_r	See specified Test Circuit.		125		ns
Turn-OFF Delay Time	$t_d(off)$			250		ns
Fall Time	t_f			200		ns
Total Gate Charge	Q_g	$V_{DS} = -30\text{V}, V_{GS} = -10\text{V}, I_D = -35\text{A}$		55		nC
Gate-to-Source Charge	Q_{gs}			7.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			12		nC
Diode Forward Voltage	V_{SD}	$I_S = -35\text{A}, V_{GS} = 0\text{V}$		-0.98	-1.5	V

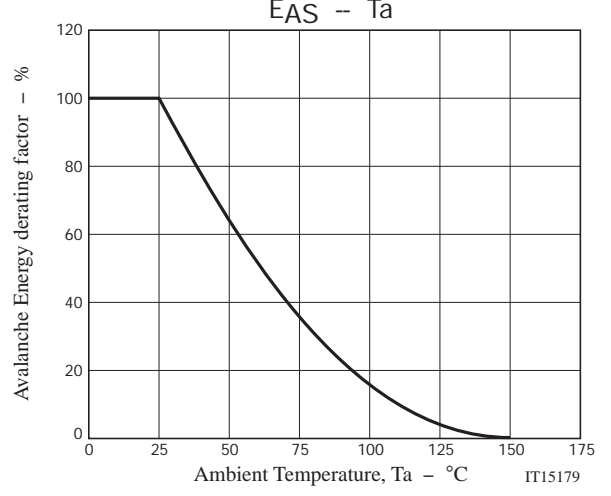
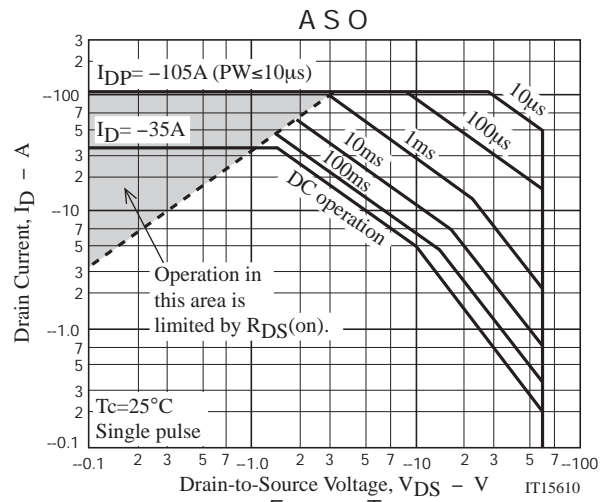
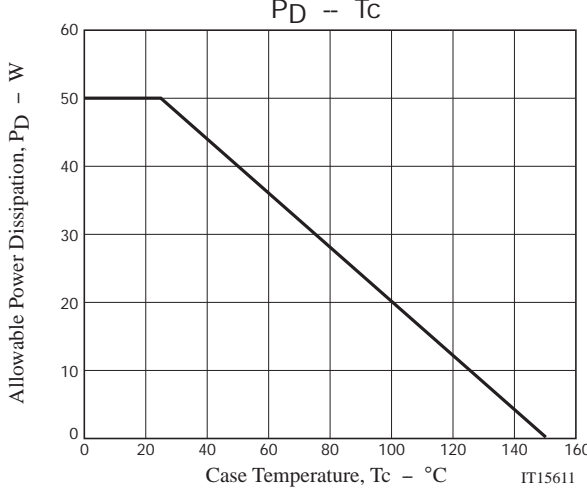
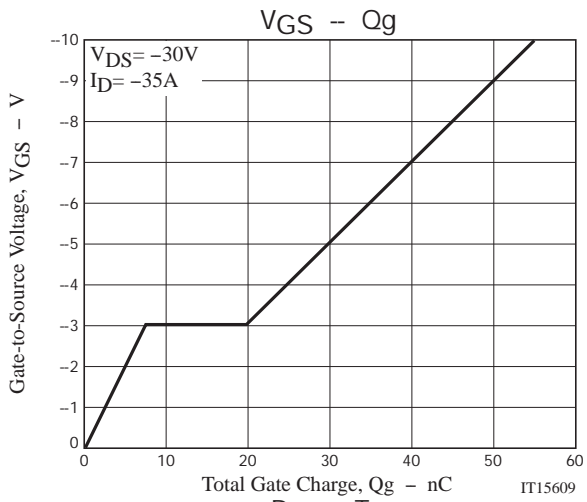
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
ATP113-TL-H	ATPAK	3,000pcs./reel	Pb Free and Halogen Free





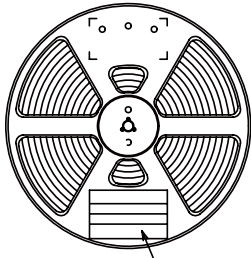
Taping Specification

ATP113-TL-H

1. Packing Format (TL)

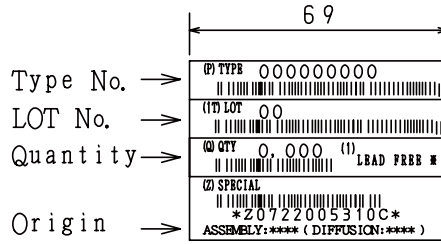
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	INNER BOX SD-C-18	OUTER BOX SD-A-18
ATPAK	ATP	3,000	3,000	15,000	1 reels contained Dimensions:mm (external) 340×340×28	5 inner boxes contained Dimensions:mm (external) 355×355×165

Packing method



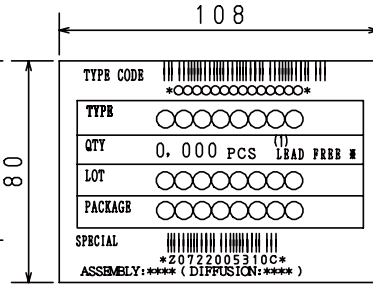
Reel label

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.

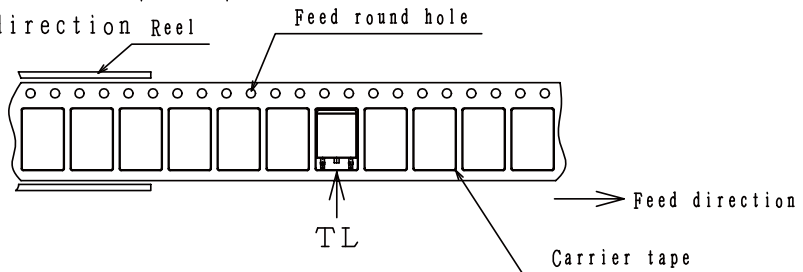
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

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

ATP113

Outline Drawing

ATP113-TL-H



Land Pattern Example



Note on usage : Since the ATP113 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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