



ATP114 — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)} = 12\text{m}\Omega$ (typ.)
- 4V drive
- Input Capacitance $C_{iss} = 4000\text{pF}$ (typ.)
- Halogen free compliance

Specifications

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

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		-55	A
Drain Current ($PW \leq 10\mu\text{s}$)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycles $\leq 1\%$	-165	A
Allowable Power Dissipation	P_D	$T_c = 25^\circ\text{C}$	60	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		100	mJ
Avalanche Current *2	I_{AV}		-28	A

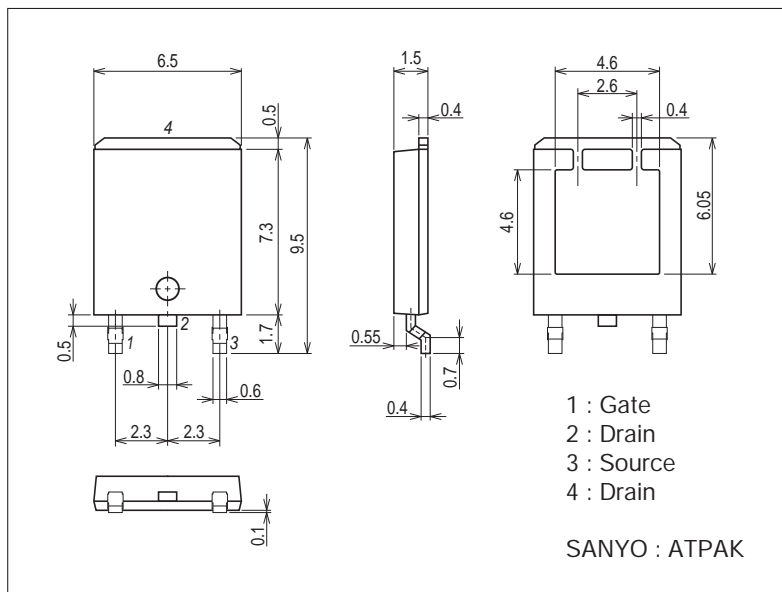
Note : *1 $V_{DD} = -15\text{V}$, $L = 200\mu\text{H}$, $I_{AV} = -28\text{A}$

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

Package Dimensions

unit : mm (typ)

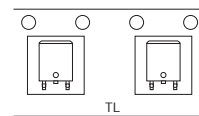
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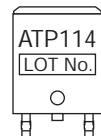
Product & Package Information

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

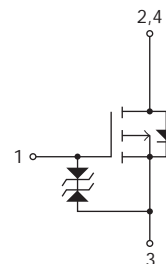
Packing Type: TL



Marking



Electrical Connection

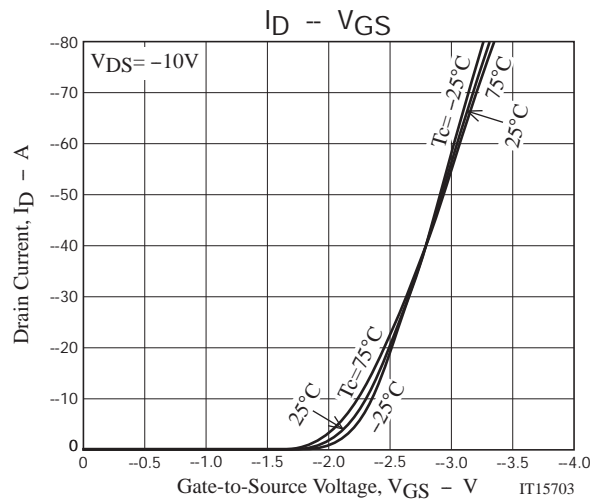
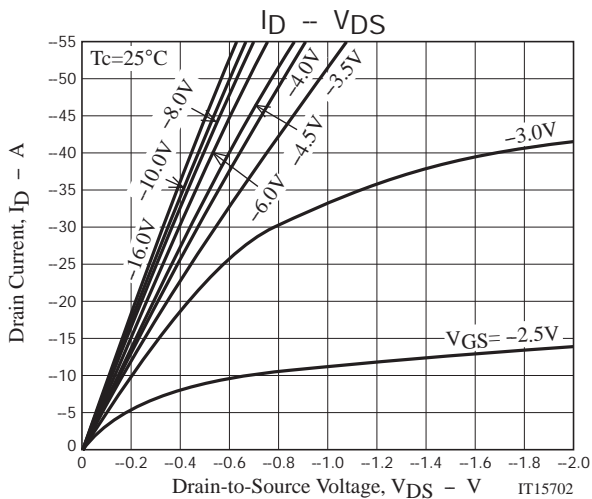
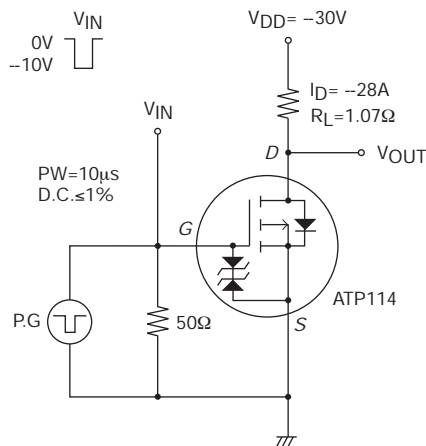


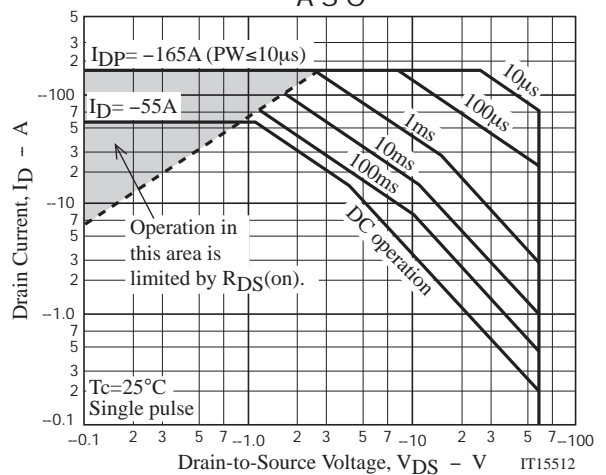
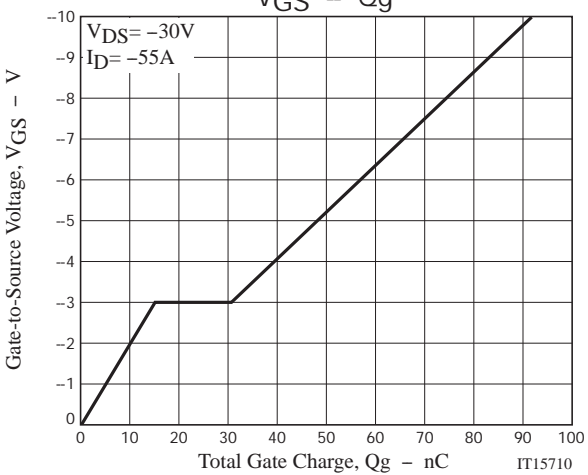
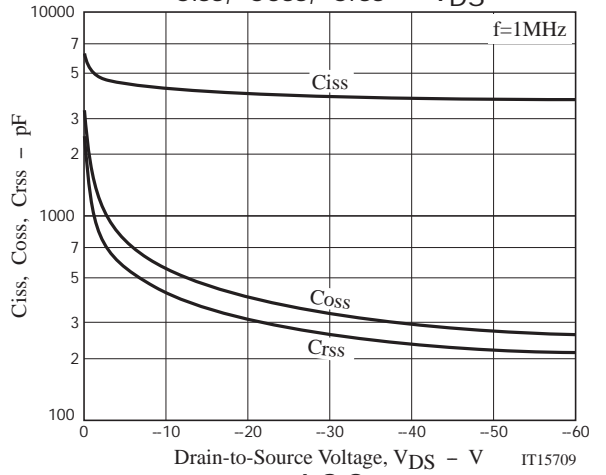
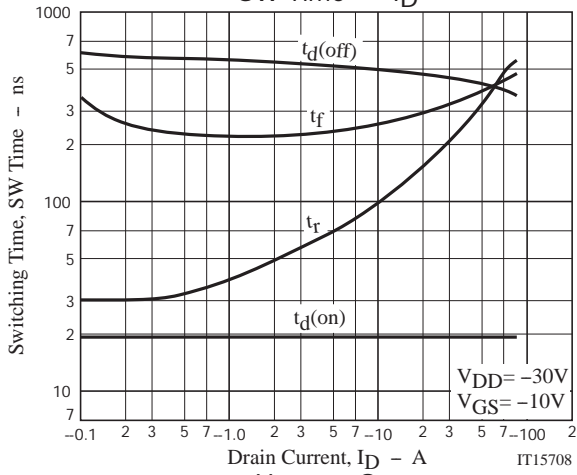
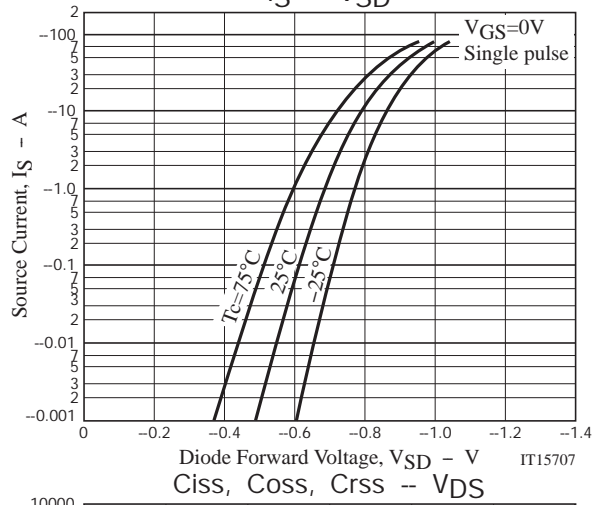
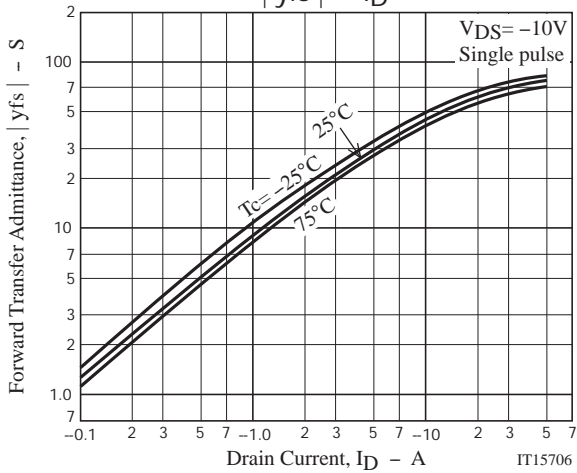
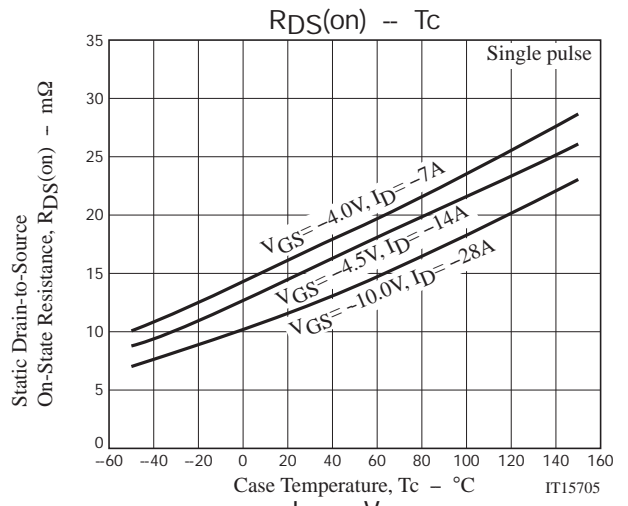
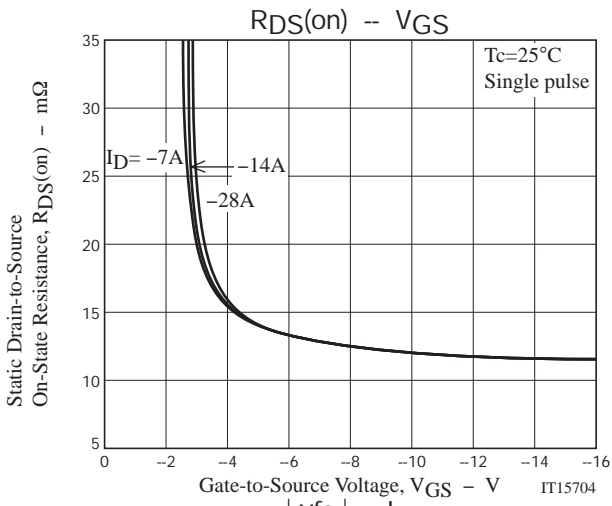
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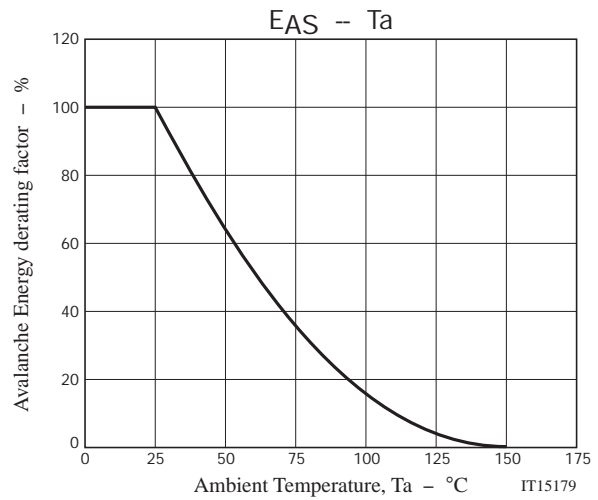
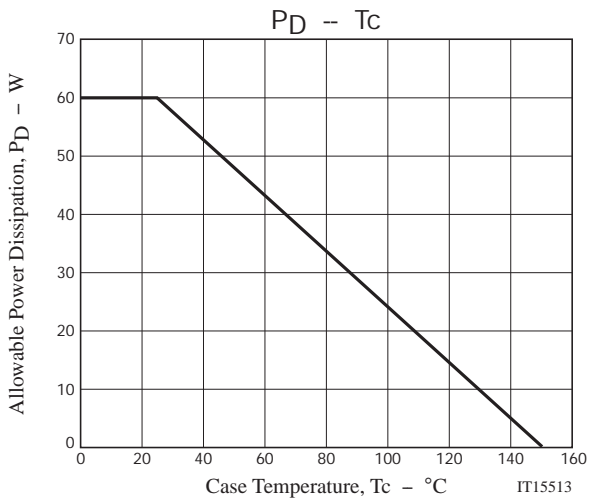
Electrical Characteristics at $T_a=25^\circ\text{C}$

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	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} $	$V_{DS}=-10\text{V}, I_D=-28\text{A}$		65		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-28\text{A}, V_{GS}=-10\text{V}$		12	16	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-14\text{A}, V_{GS}=-4.5\text{V}$		15	21	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=-7\text{A}, V_{GS}=-4\text{V}$		16.5	24	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-20\text{V}, f=1\text{MHz}$		4000		pF
Output Capacitance	C_{oss}	$V_{DS}=-20\text{V}, f=1\text{MHz}$		400		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-20\text{V}, f=1\text{MHz}$		315		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		19		ns
Rise Time	t_r	See specified Test Circuit.		200		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		450		ns
Fall Time	t_f	See specified Test Circuit.		300		ns
Total Gate Charge	Q_g	$V_{DS}=-30\text{V}, V_{GS}=-10\text{V}, I_D=-55\text{A}$		92		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-30\text{V}, V_{GS}=-10\text{V}, I_D=-55\text{A}$		15		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-30\text{V}, V_{GS}=-10\text{V}, I_D=-55\text{A}$		15.5		nC
Diode Forward Voltage	V_{SD}	$I_S=-55\text{A}, V_{GS}=0\text{V}$		-0.95	-1.5	V

Switching Time Test Circuit







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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