



# ATP106 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Large current.
- Slim package.
- 4.5V drive.
- Halogen free compliance.

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-40	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-30	A
Drain Current (PW≤10μs)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-90	A
Allowable Power Dissipation	P <sub>D</sub>	T <sub>c</sub> =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>		30	mJ
Avalanche Current *2	I <sub>AV</sub>		-15	A

Note : \*1 V<sub>DD</sub>=-10V, L=200μH, I<sub>AV</sub>=-15A

\*2 L≤200μH, Single pulse

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	-40			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-40V, 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

Marking : ATP106

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# ATP106

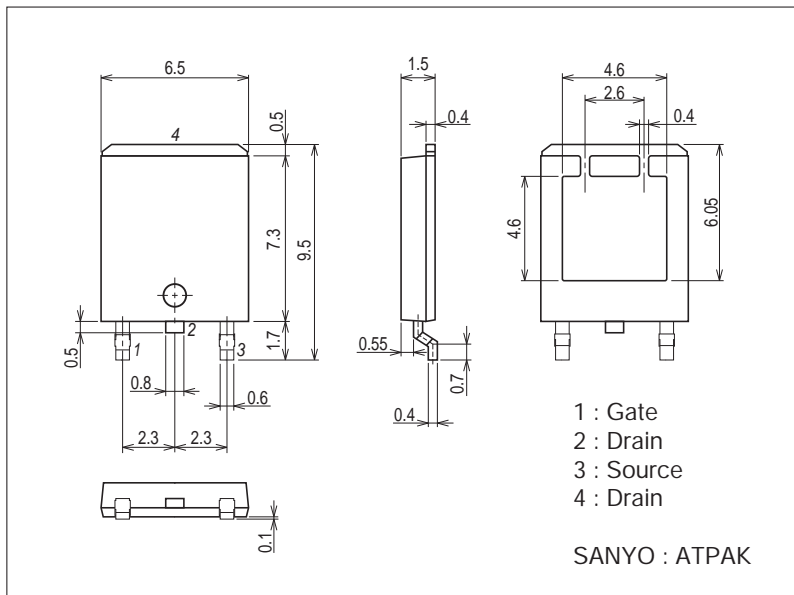
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.5		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-15A$		28		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-15A, V_{GS}=-10V$		19	25	$m\Omega$
	$R_{DS(on)2}$	$I_D=-8A, V_{GS}=-4.5V$		29	41	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-20V, f=1MHz$		1380		$\mu F$
Output Capacitance	$C_{oss}$	$V_{DS}=-20V, f=1MHz$		210		$\mu F$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-20V, f=1MHz$		150		$\mu F$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12		ns
Rise Time	$t_r$	See specified Test Circuit.		120		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		110		ns
Fall Time	$t_f$	See specified Test Circuit.		90		ns
Total Gate Charge	$Q_g$	$V_{DS}=-20V, V_{GS}=-10V, I_D=-30A$		29		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-20V, V_{GS}=-10V, I_D=-30A$		6.4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-20V, V_{GS}=-10V, I_D=-30A$		5.9		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-30A, V_{GS}=0V$		-0.97	-1.5	V

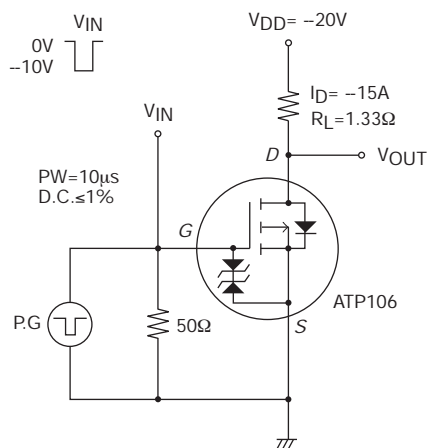
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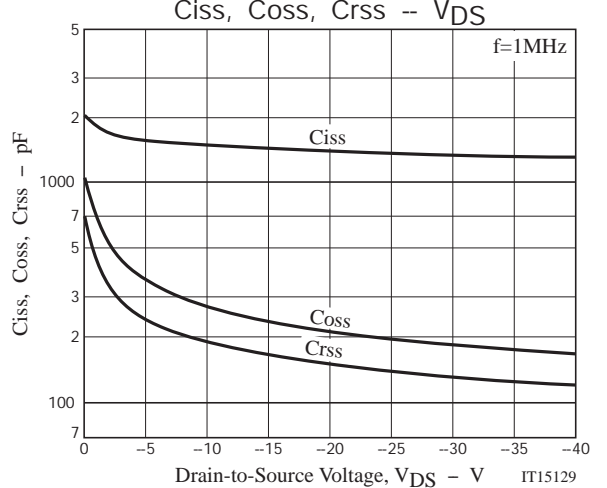
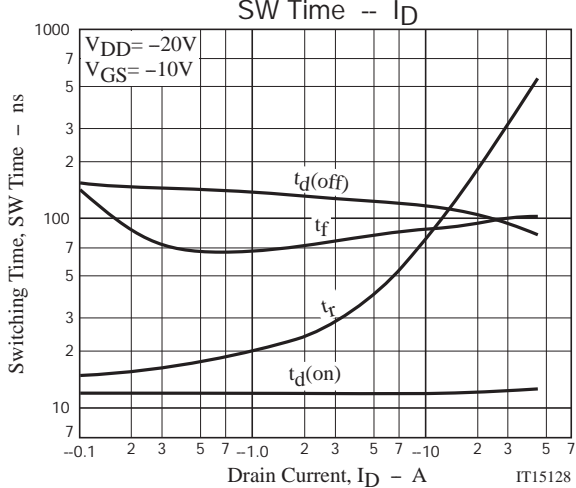
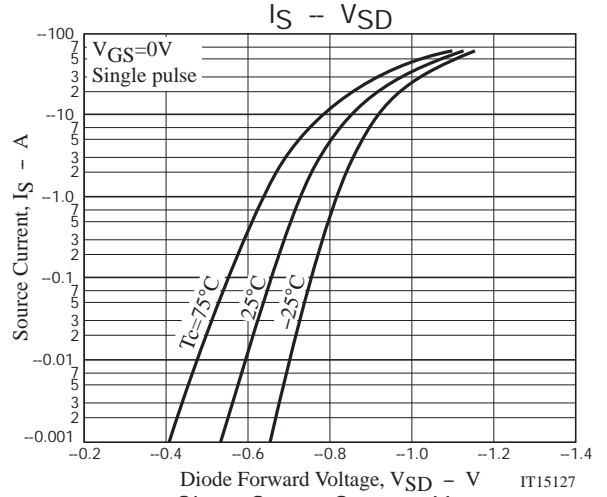
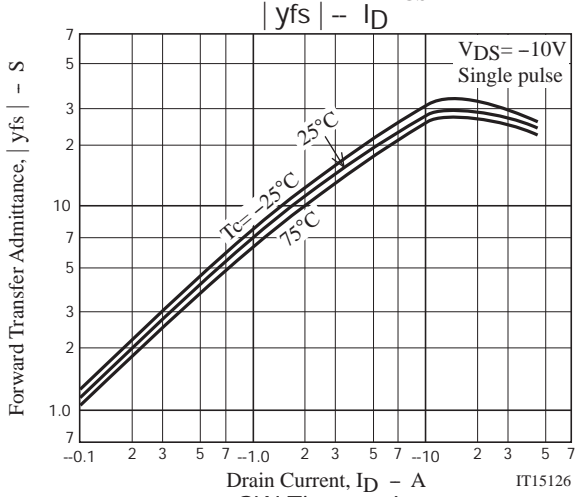
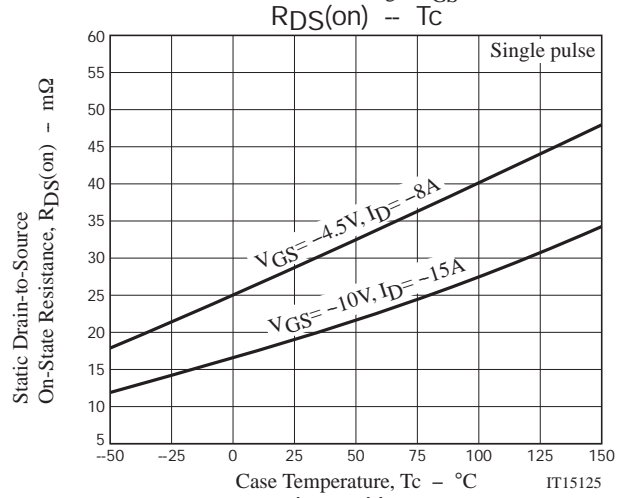
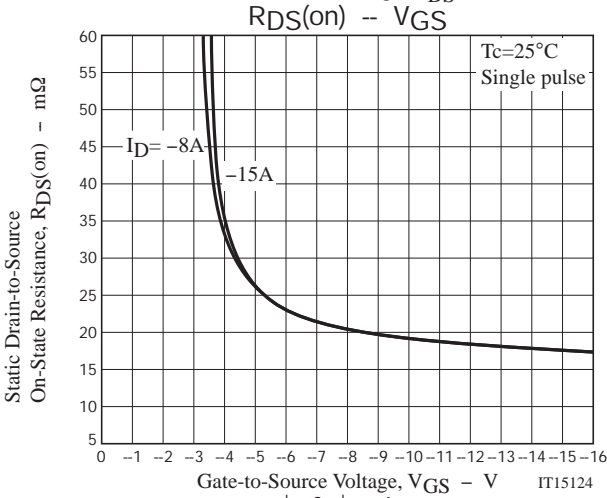
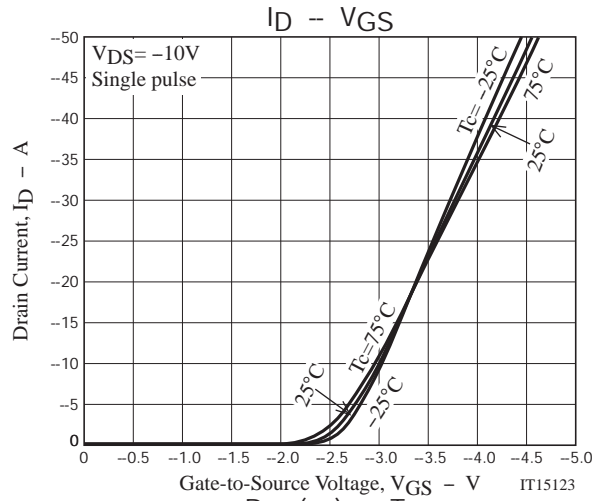
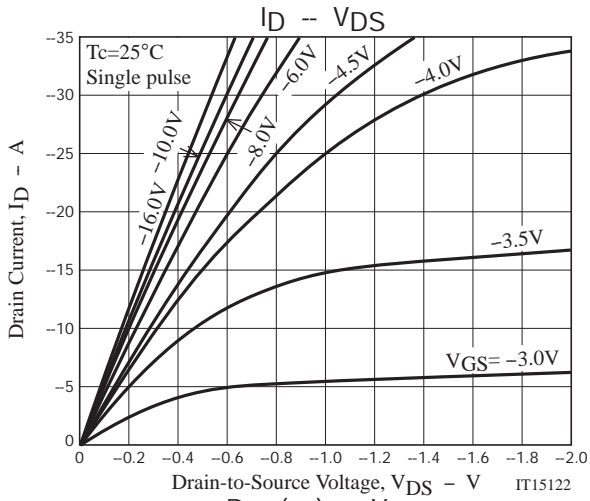
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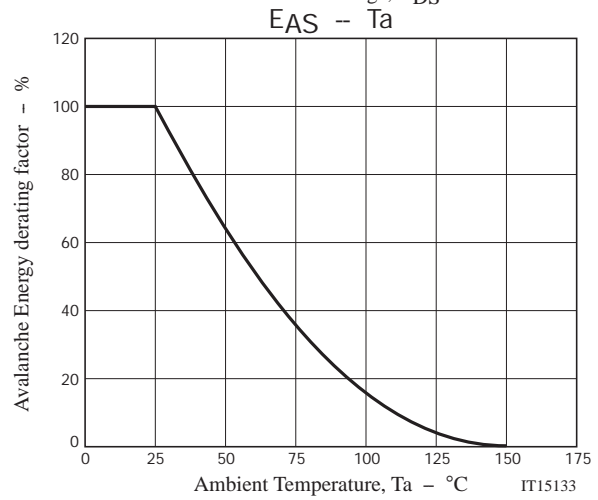
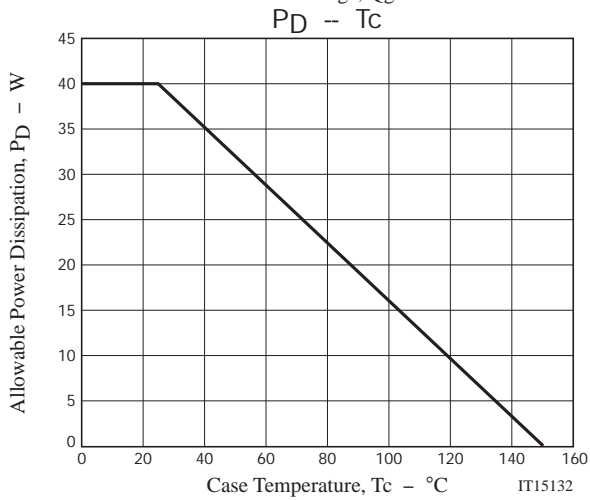
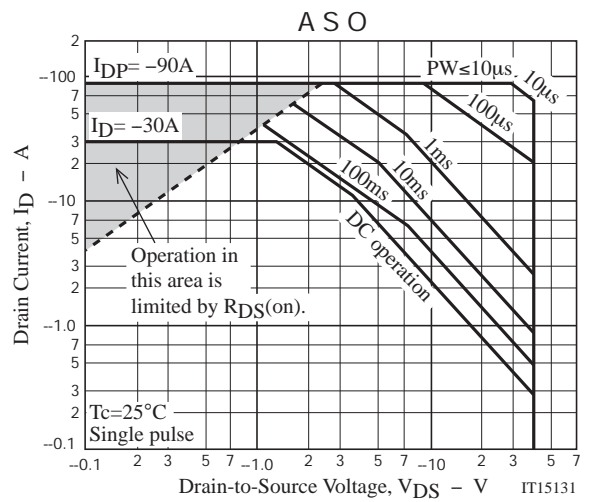
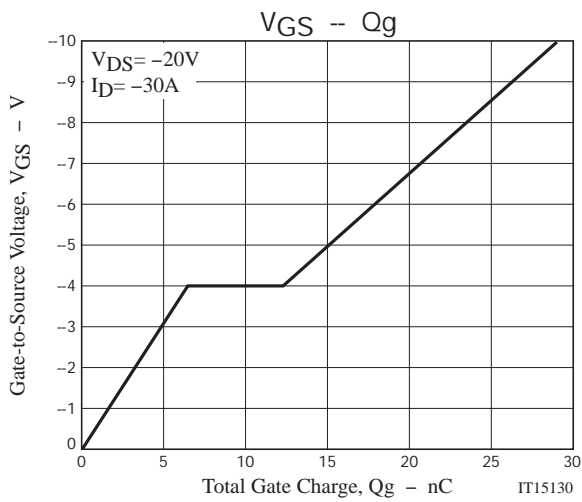
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## Switching Time Test Circuit







Note on usage : Since the ATP106 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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