



SANYO Semiconductors

## DATA SHEET

# ATP302 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Avalanche resistance guarantee.
- Halogen free compliance.

### 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>		-70	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-280	A
Allowable Power Dissipation	P <sub>D</sub>	Tc=25°C	70	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>		197	mJ
Avalanche Current *2	I <sub>AV</sub>		-42	A

Note : \*1 V<sub>DD</sub>=-36V, L=100μH, I<sub>AV</sub>=-42A

\*2 L≤100μH, 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	-60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-10	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> =-35A		75		S

Marking : ATP302

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# ATP302

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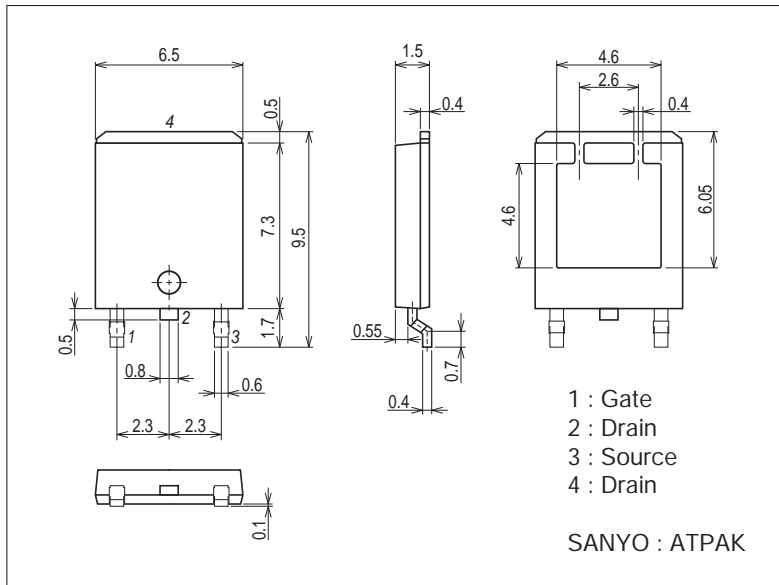
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -35A, V_{GS} = -10V$		10	13	$m\Omega$
	$R_{DS(on)2}$	$I_D = -35A, V_{GS} = -4.5V$		13	18	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -20V, f = 1MHz$		5400		$\mu F$
Output Capacitance	$C_{oss}$	$V_{DS} = -20V, f = 1MHz$		500		$\mu F$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -20V, f = 1MHz$		370		$\mu F$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		35		ns
Rise Time	$t_r$	See specified Test Circuit.		430		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		420		ns
Fall Time	$t_f$	See specified Test Circuit.		500		ns
Total Gate Charge	$Q_g$	$V_{DS} = -36V, V_{GS} = -10V, I_D = -70A$		115		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -36V, V_{GS} = -10V, I_D = -70A$		20		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -36V, V_{GS} = -10V, I_D = -70A$		25		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -70A, V_{GS} = 0V$		-1.0	-1.5	V

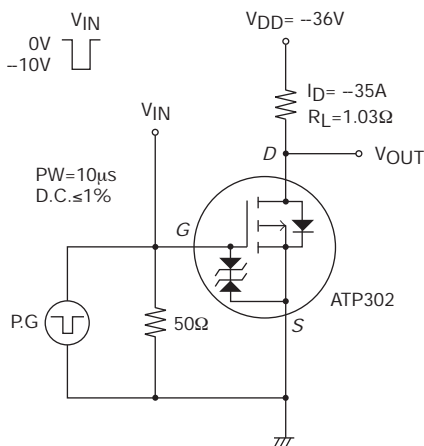
## Package Dimensions

unit : mm (typ)

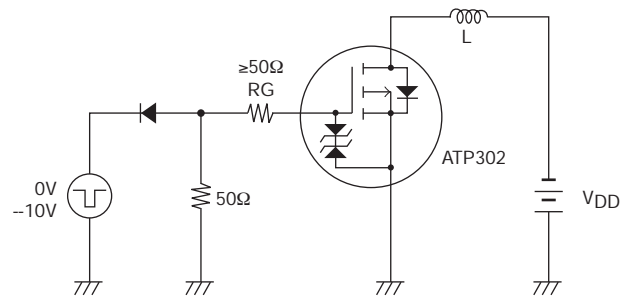
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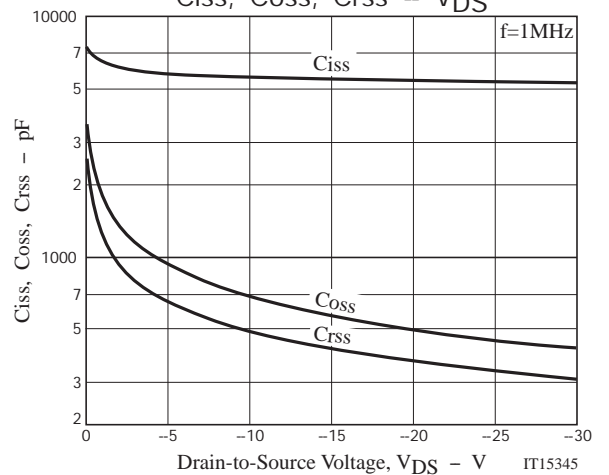
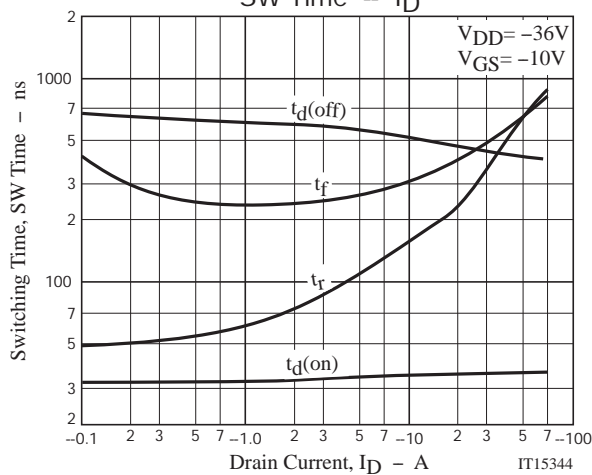
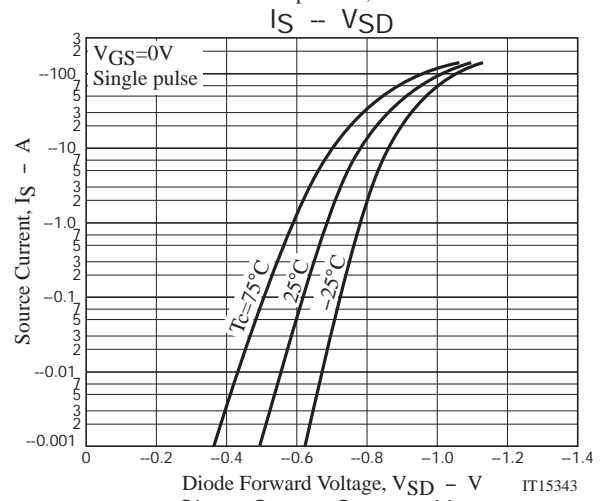
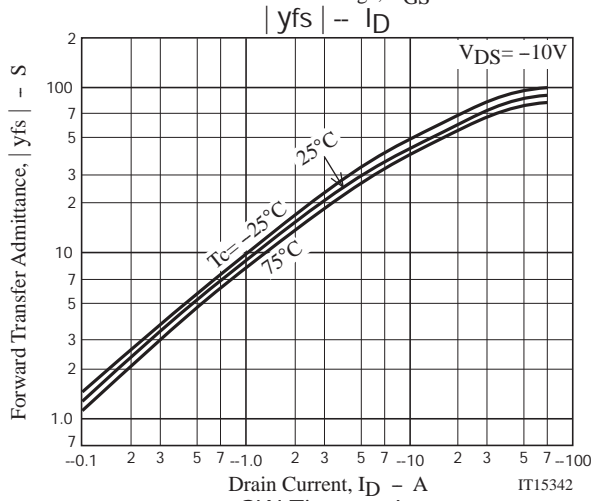
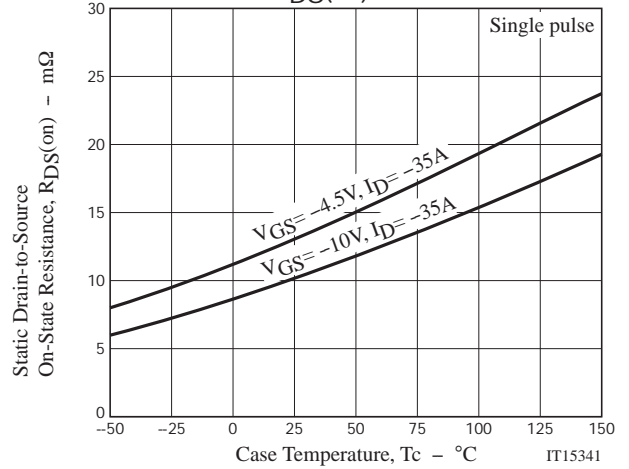
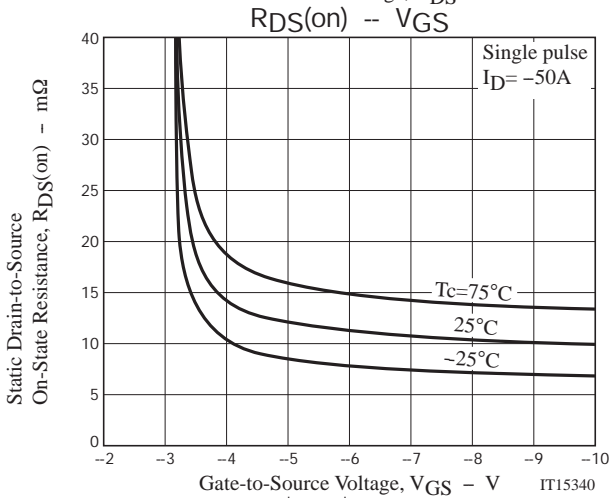
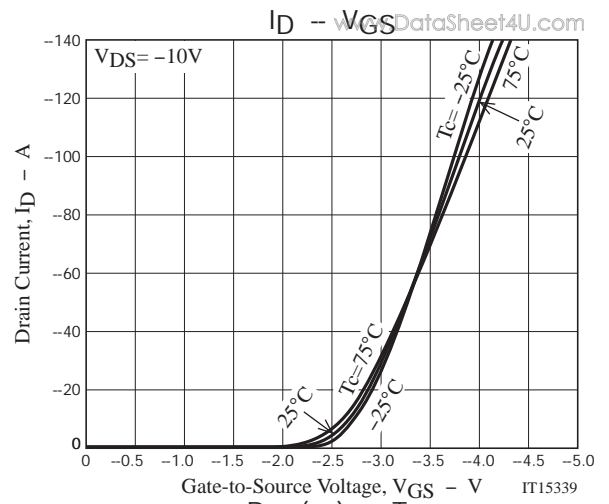
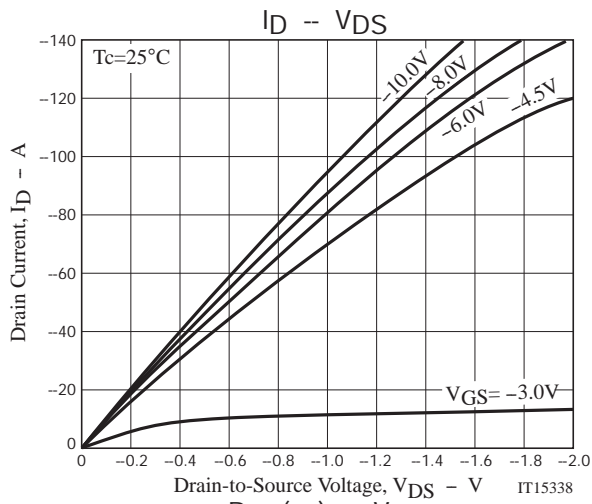


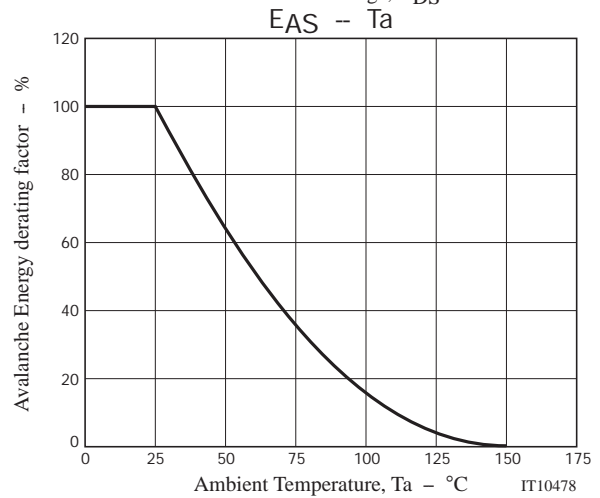
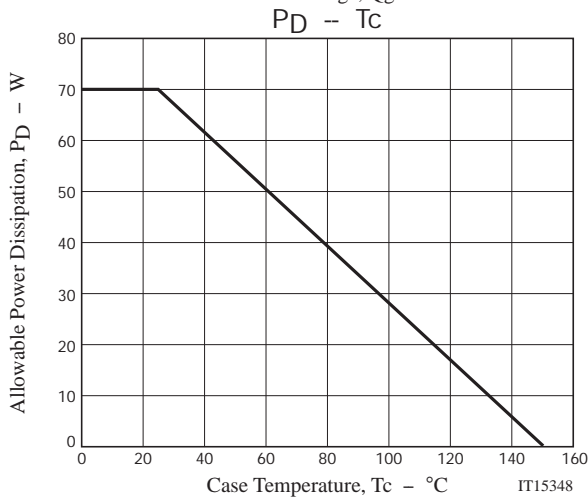
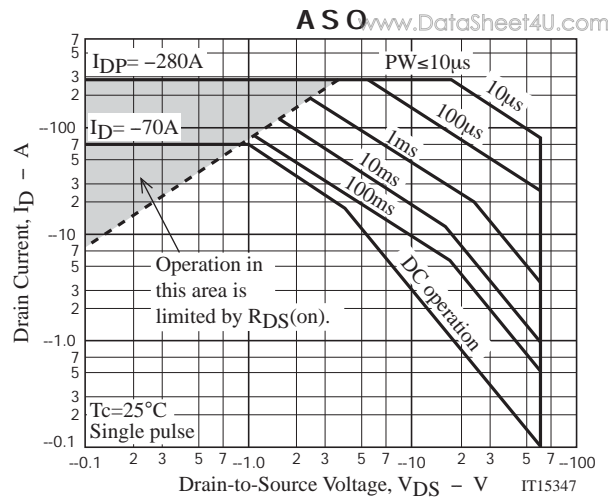
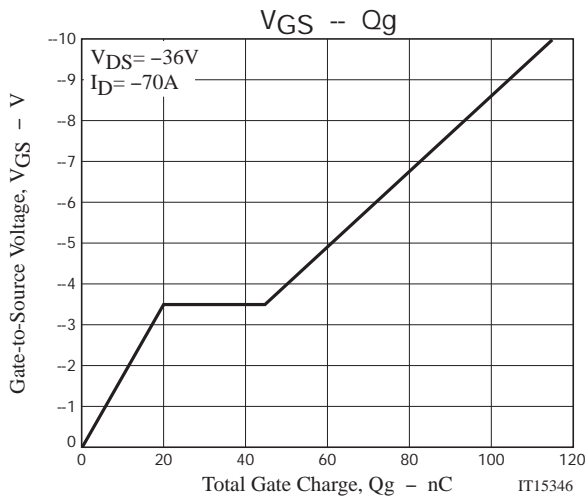
## Switching Time Test Circuit



## Avalanche Resistance Test Circuit







Note on usage : Since the ATP302 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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