Ordering number : ENA1654

SANYO Semiconductors
DATA SHEET

P-Channel Silicon MOSFET

ATP302 — 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_{DSS}		−60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−70	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−280	A
Allowable Power Dissipation	P_D	Tc=25°C	70	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		197	mJ
Avalanche Current *2	I_{AV}		−42	A

Note :*1 V_{DD}=−36V, L=100μH, I_{AV}=−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_D=−1mA, V_{GS}=0V	−60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−60V, V_{GS}=0V			−10	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=−10V, I_D=−1mA	−1.2		−2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=−10V, I_D=−35A		75		S

Marking : ATP302

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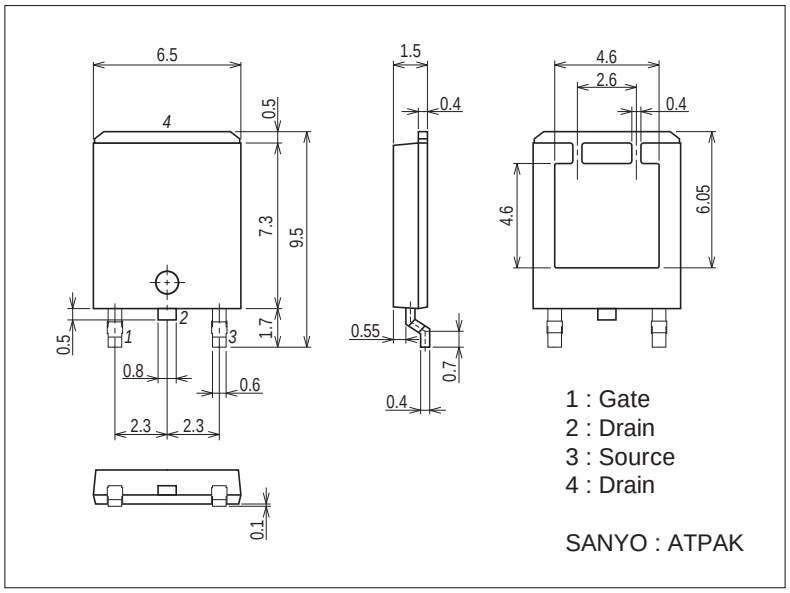
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=−35A, V_{GS}=−10V		10	13	mΩ
	$R_{DS}(on)2$	I_D=−35A, V_{GS}=−4.5V		13	18	mΩ
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		5400		pF
Output Capacitance	Coss	V_{DS}=−20V, f=1MHz		500		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−20V, f=1MHz		370		pF
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	Qg	V_{DS}=−36V, V_{GS}=−10V, I_D=−70A		115		nC
Gate-to-Source Charge	Qgs	V_{DS}=−36V, V_{GS}=−10V, I_D=−70A		20		nC
Gate-to-Drain “Miller” Charge	Qgd	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

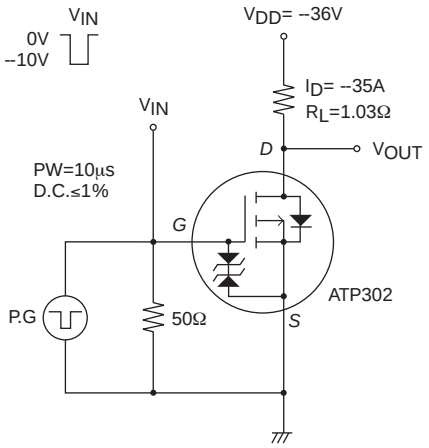
Package Dimensions

unit : mm (typ)

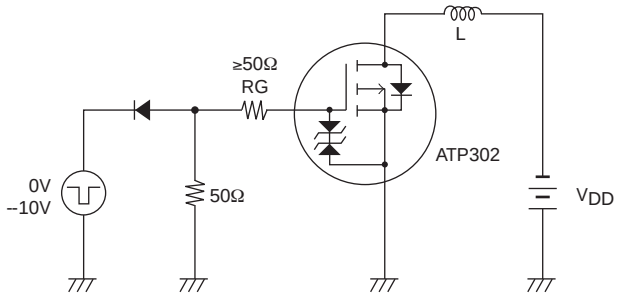
7057-001



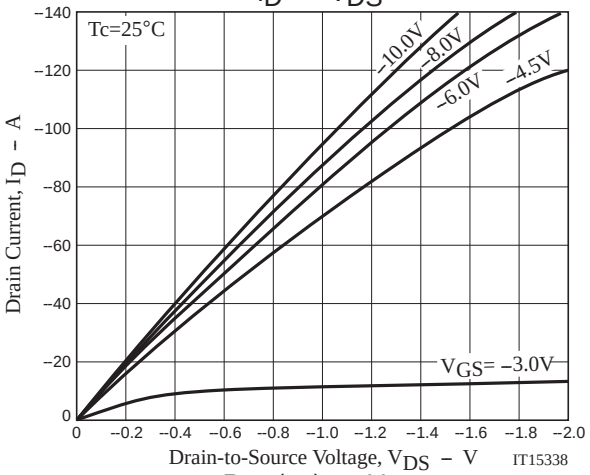
Switching Time Test Circuit



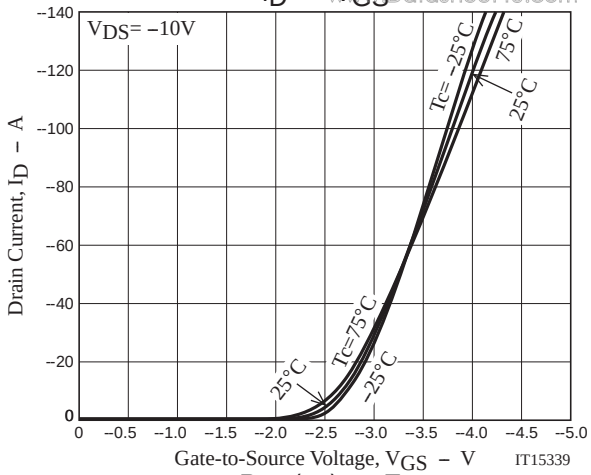
Avalanche Resistance Test Circuit



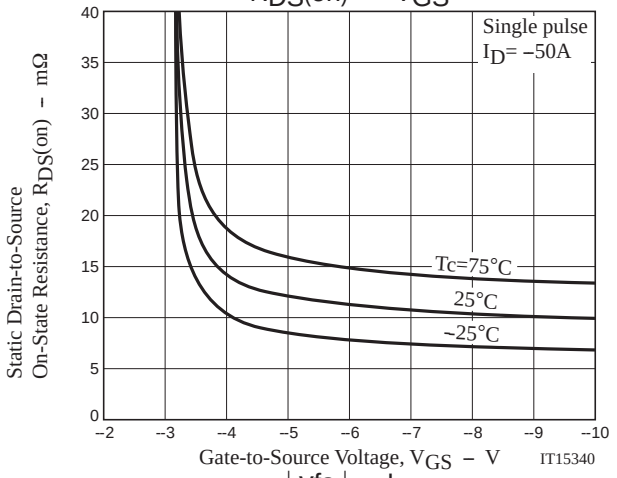
I_D -- V_{DS}



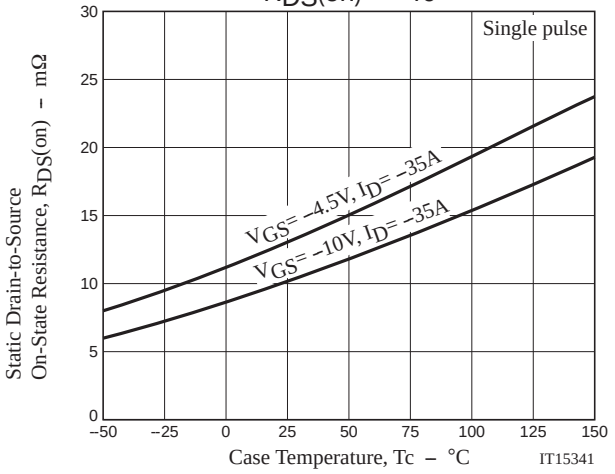
I_D -- V_{GS}



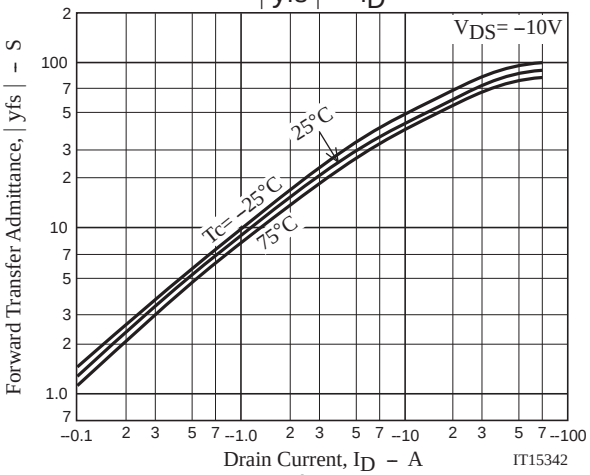
$R_{DS(on)}$ -- V_{GS}



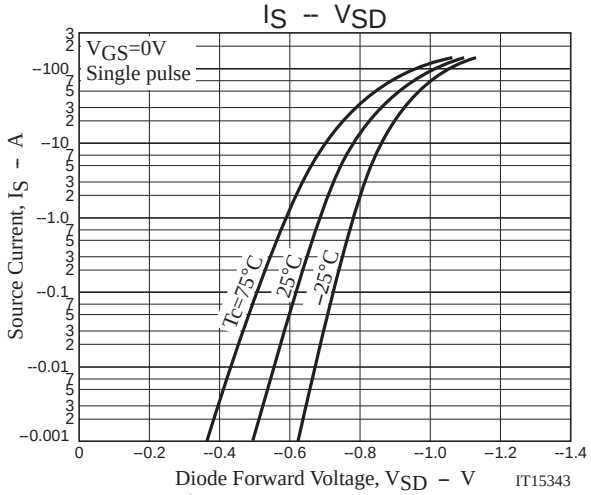
$R_{DS(on)}$ -- Tc



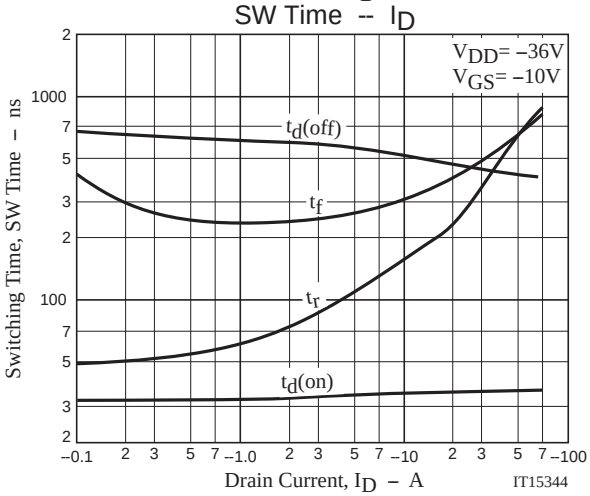
$|yfs|$ -- I_D



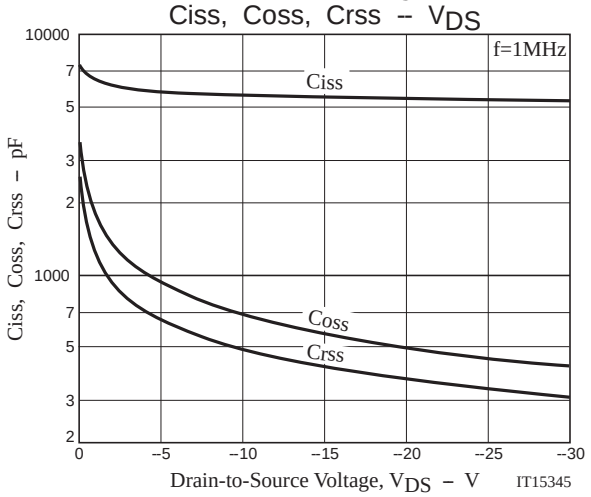
I_S -- V_{SD}

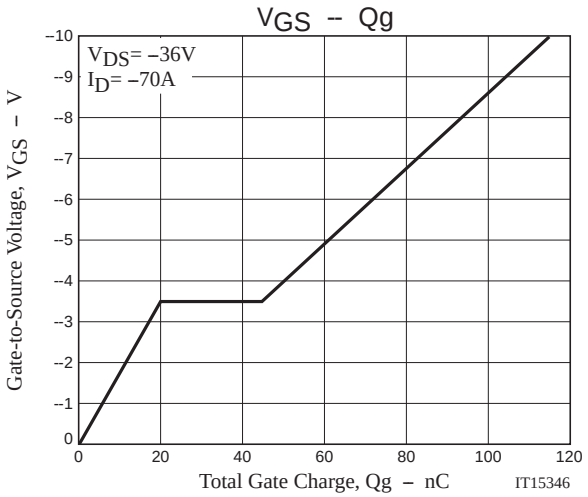


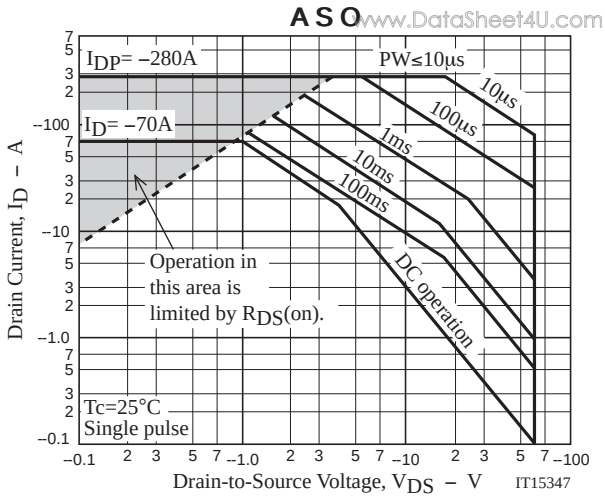
SW Time -- I_D

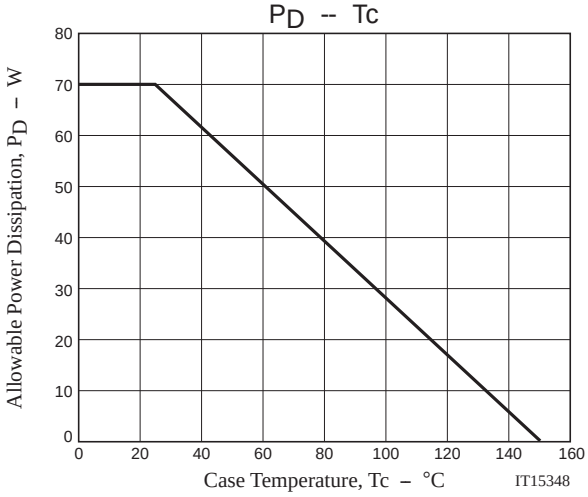


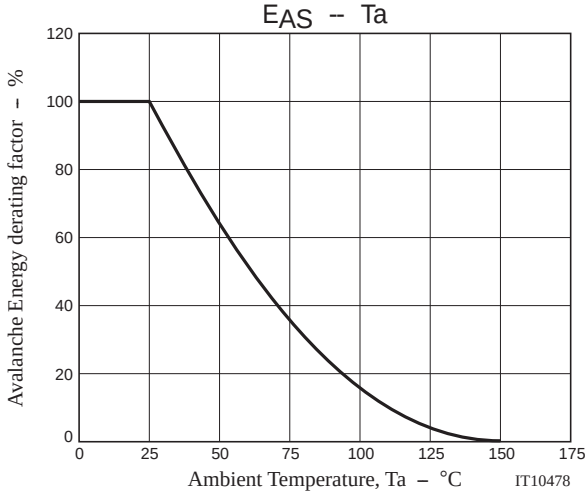
Ciss, Coss, Crss -- V_{DS}











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

This catalog provides information as of February, 2010. Specifications and information herein are subject to change without notice.