



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

SMP3003 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=6.2m\Omega$ (typ.)
- Input capacitance $C_{iss}=13400pF$
- 4V drive

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-75	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		-100	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-400	A
Allowable Power Dissipation	P_D	$T_c=25^\circ C$	90	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		468	mJ
Avalanche Current *2	I_{AV}		-60	A

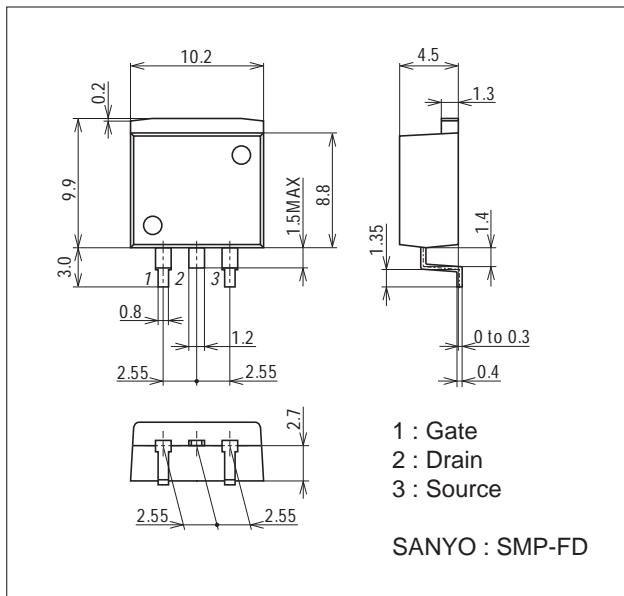
Note : *1 $V_{DD}=-48V$, $L=100\mu H$, $I_{AV}=-60A$ (Fig.1)

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

Package Dimensions

unit : mm (typ)

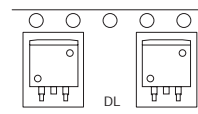
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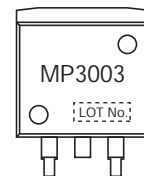
Product & Package Information

- Package : SMP-FD
- JEITA, JEDEC : SC-83, TO-220SMD SOT-404, D2PAK
- Minimum Packing Quantity : 1000 pcs./reel

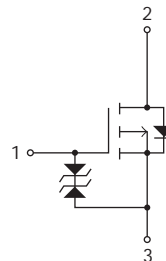
Packing Type: DL



Marking



Electrical Connection



SMP3003

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-75			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -75\text{V}, V_{GS} = 0\text{V}$			-10	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} $	$V_{DS} = -10\text{V}, I_D = -50\text{A}$		140		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -50\text{A}, V_{GS} = -10\text{V}$		6.2	8.0	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -50\text{A}, V_{GS} = -4\text{V}$		8.0	11	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -20\text{V}, f = 1\text{MHz}$		13400		pF
Output Capacitance	C_{oss}			1000		pF
Reverse Transfer Capacitance	C_{rss}			740		pF
Turn-ON Delay Time	$t_{d(on)}$		See Fig.2		95	
Rise Time	t_r			1000		ns
Turn-OFF Delay Time	$t_{d(off)}$			800		ns
Fall Time	t_f			820		ns
Total Gate Charge	Q_g	$V_{DS} = -48\text{V}, V_{GS} = -10\text{V}, I_D = -100\text{A}$			280	
Gate-to-Source Charge	Q_{gs}			50		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			55		nC
Diode Forward Voltage	V_{SD}	$I_S = -100\text{A}, V_{GS} = 0\text{V}$		-1.0	-1.5	V
Reverse Recovery Time	t_{rr}	See Fig.3		120		ns
Reverse Recovery Charge	Q_{rr}	$I_S = -100\text{A}, V_{GS} = 0\text{V}, di/dt = -100\text{A}/\mu\text{s}$		380		nC

Fig.1 Avalanche Resistance Test Circuit

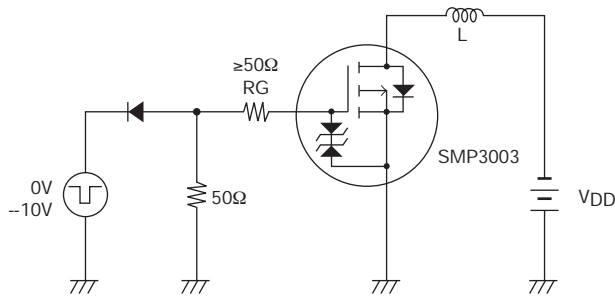


Fig.2 Switching Time Test Circuit

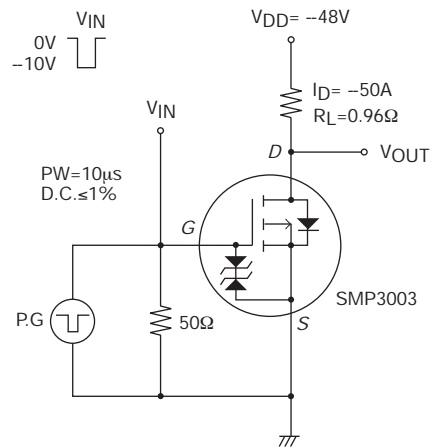
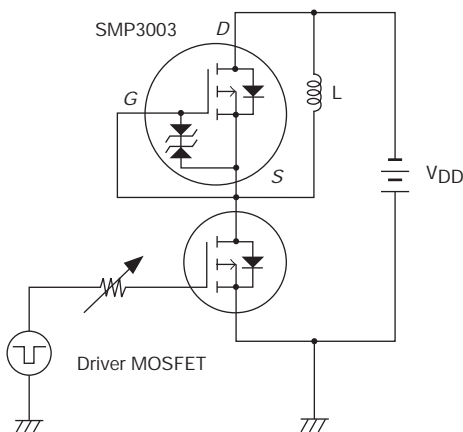
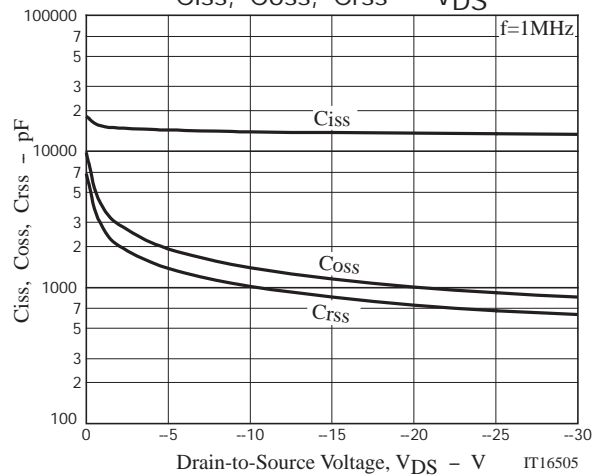
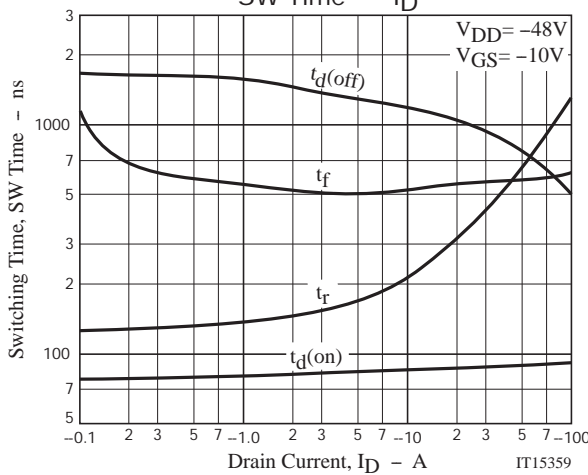
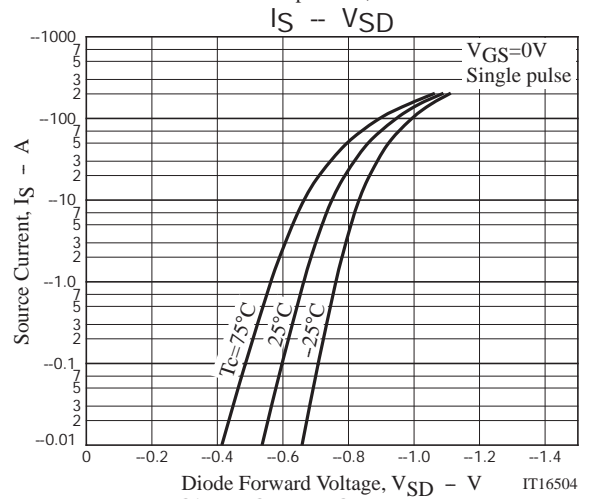
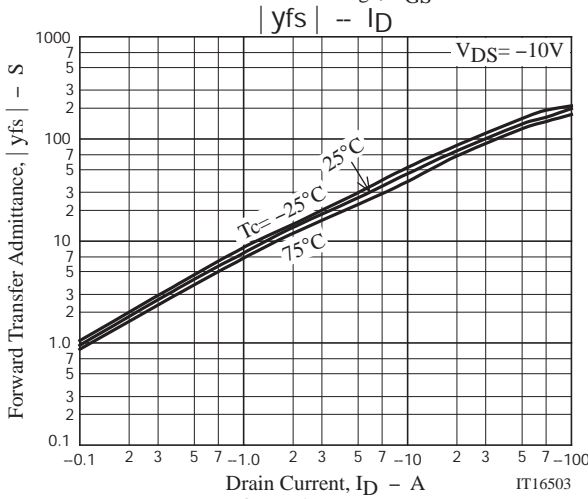
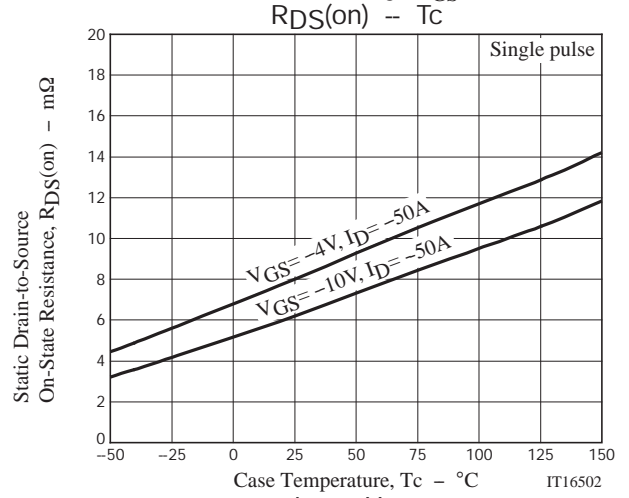
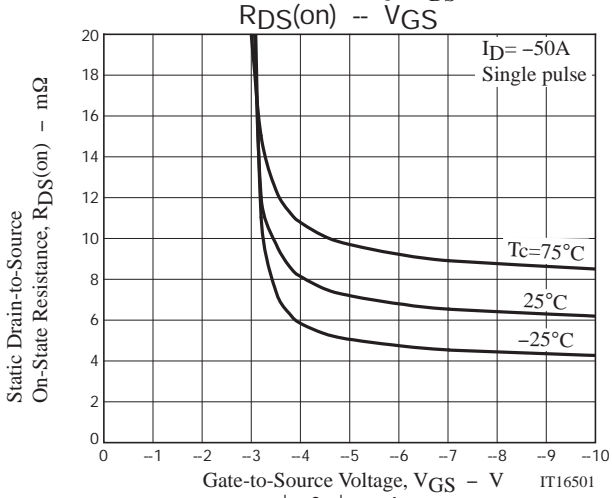
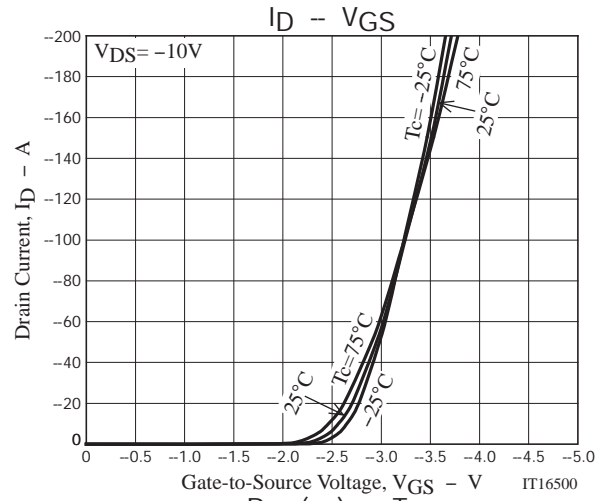
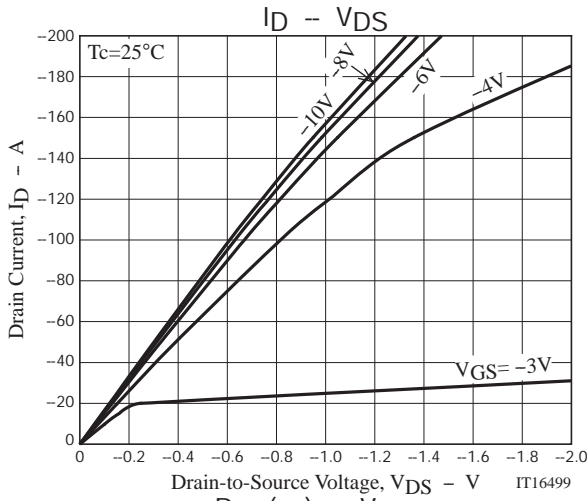
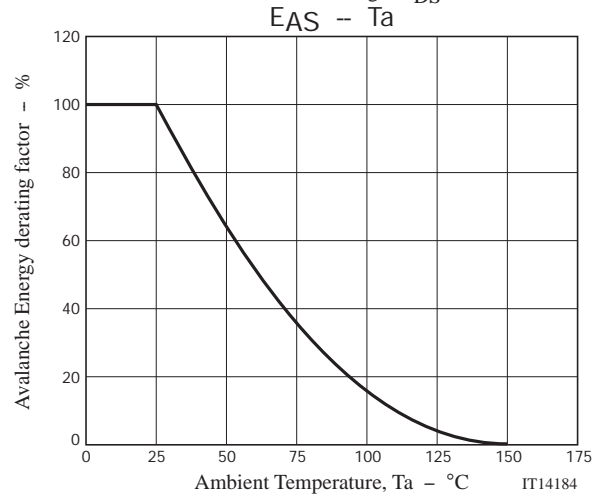
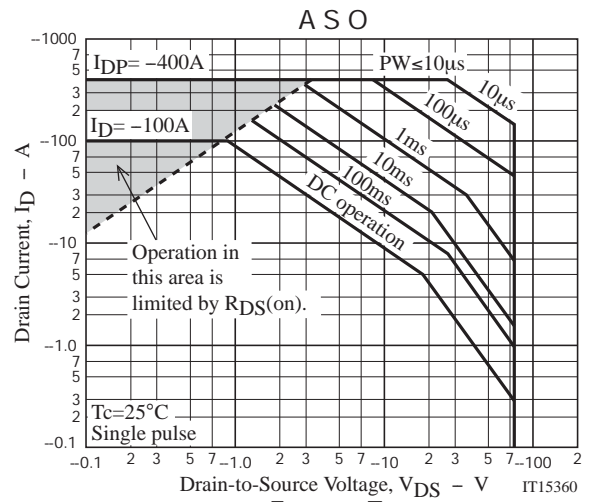
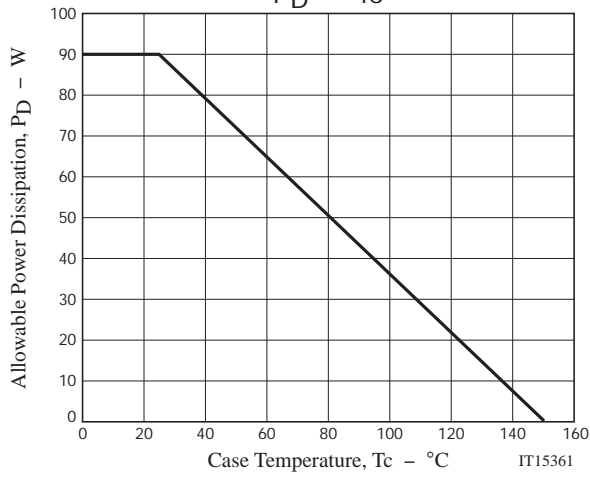
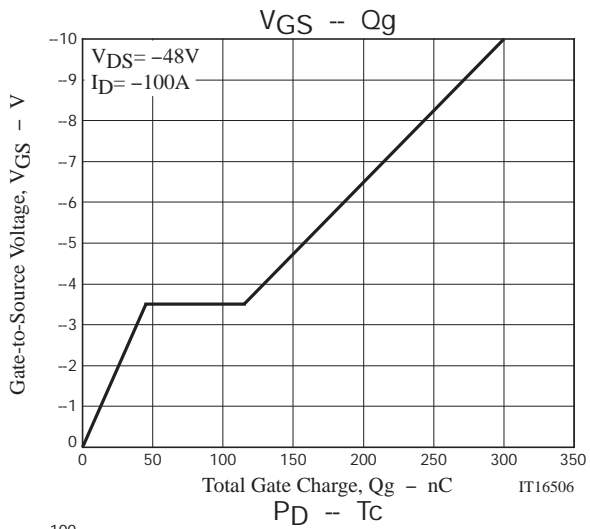


Fig.3 Reverse Recovery Time Test Circuit





SMP3003



Note on usage : Since the SMP3003 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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