



BMS4003 — N-Channel Silicon MOSFET

General-Purpose Switching Device

Applications

Features

- ON-resistance $R_{DS(on)}=50m\Omega$ (typ.)
- Input capacitance $C_{iss}=680pF$ (typ.)
- 10V drive

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		100	V
Gate-to-Source Voltage	V_{GSS}		± 30	V
Drain Current (DC)	I_D		18	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	72	A
Allowable Power Dissipation	PD		2.0	W
		$T_c=25^\circ C$	25	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		53	mJ
Avalanche Current *2	I_{AV}		15	A

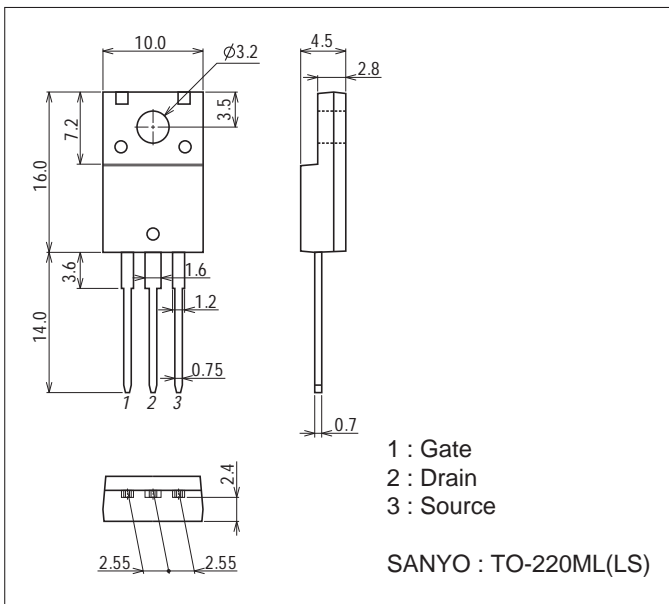
Note : *1 $V_{DD}=60V$, $L=200\mu H$, $I_{AV}=15A$ (Fig.1)

*2 $L \leq 200\mu H$, Single pulse

Package Dimensions

unit : mm (typ)

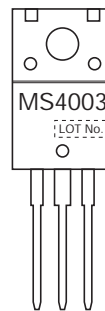
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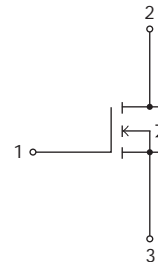
Product & Package Information

- Package : TO-220ML(LS)
- JEITA, JEDEC : SC-67, SOT-186A
- Minimum Packing Quantity : 100 pcs./bag or 50pcs./magazine

Marking



Electrical Connection



BMS4003

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	100			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$			± 100	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	3		5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=9A$		7.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=9A, V_{GS}=10V$		50	65	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		680		pF
Output Capacitance	C_{oss}			130		pF
Reverse Transfer Capacitance	C_{rss}			33		pF
Turn-ON Delay Time	$t_{d(on)}$		See Fig.2		16	
Rise Time	t_r			33		ns
Turn-OFF Delay Time	$t_{d(off)}$			27		ns
Fall Time	t_f			15		ns
Total Gate Charge	Q_g	$V_{DS}=60V, V_{GS}=10V, I_D=18A$			11.4	
Gate-to-Source Charge	Q_{gs}			4.1		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			3.8		nC
Diode Forward Voltage	V_{SD}	$I_S=18A, V_{GS}=0V$		0.9	1.2	V
Reverse Recovery Time	t_{rr}	See Fig.3		60		ns
Reverse Recovery Charge	Q_{rr}	$I_S=18A, V_{GS}=0V, di/dt=100A/\mu s$		114		nC

Fig.1 Avalanche Resistance Test Circuit

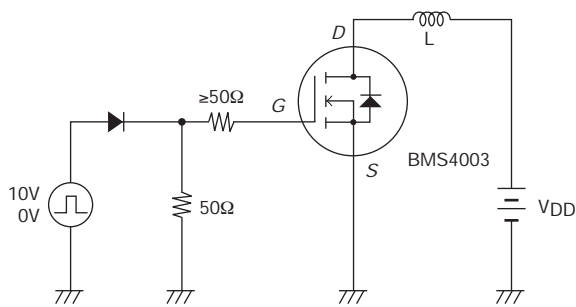


Fig.2 Switching Time Test Circuit

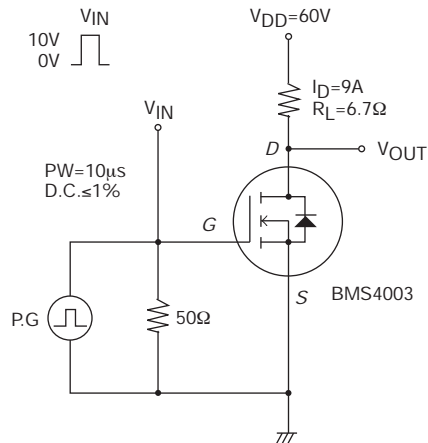
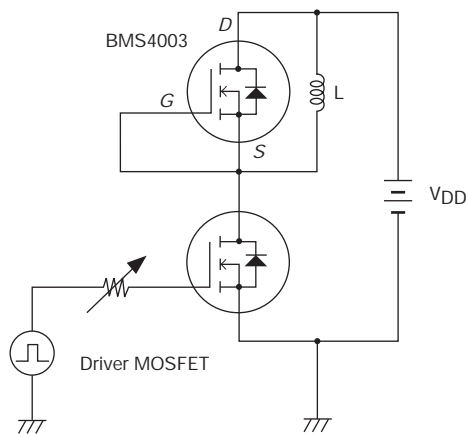
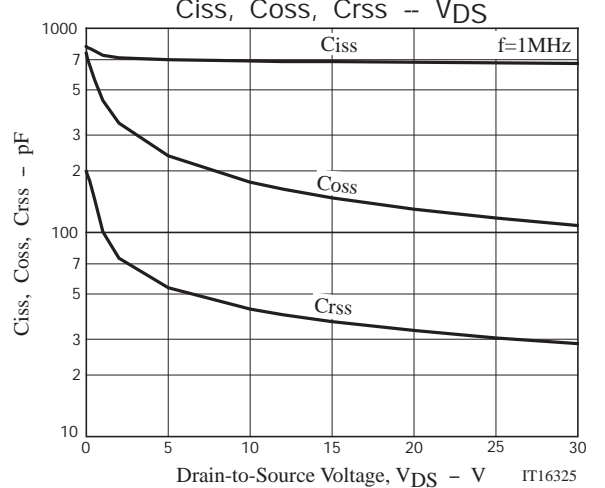
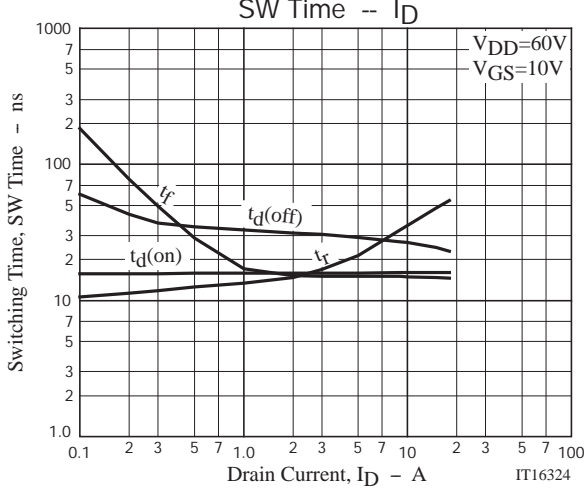
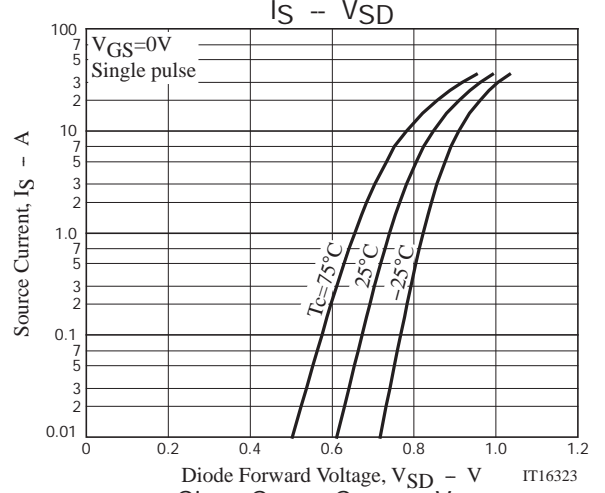
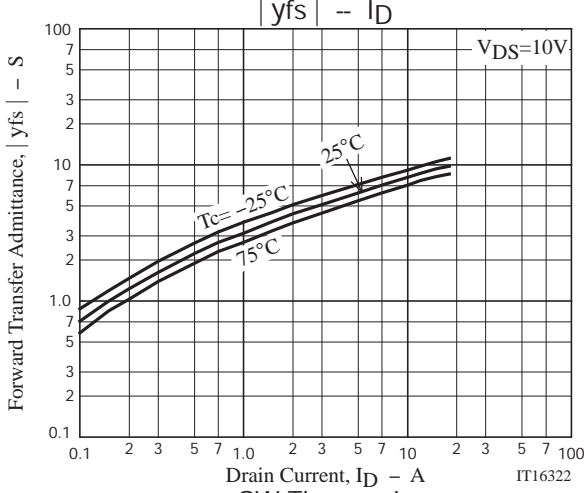
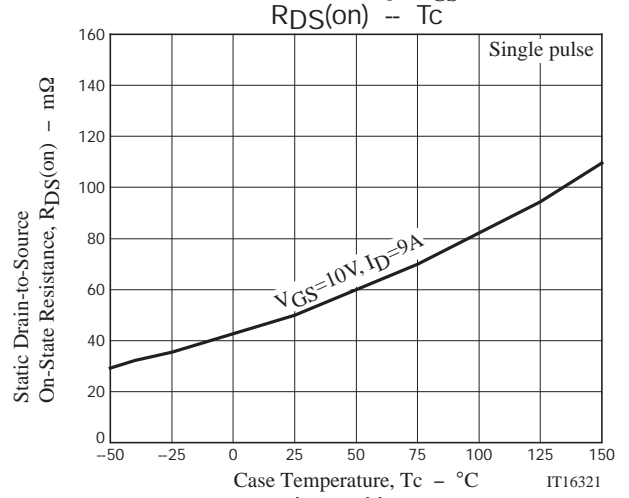
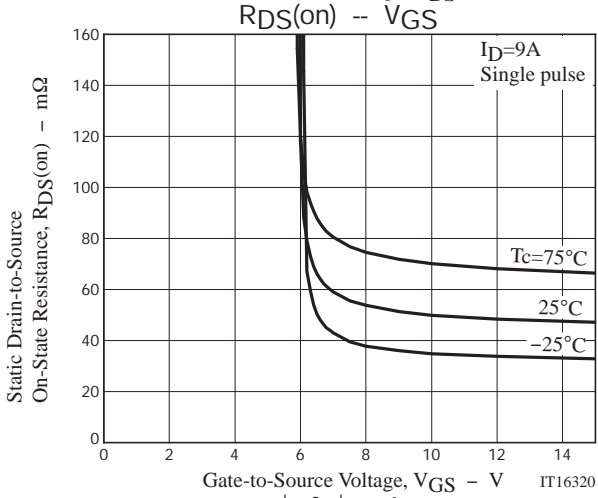
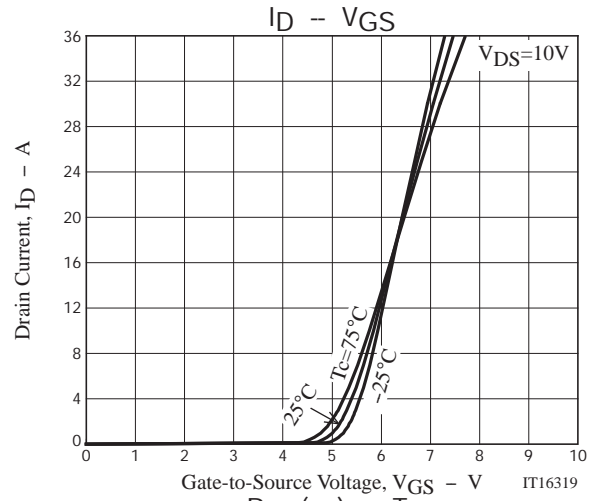
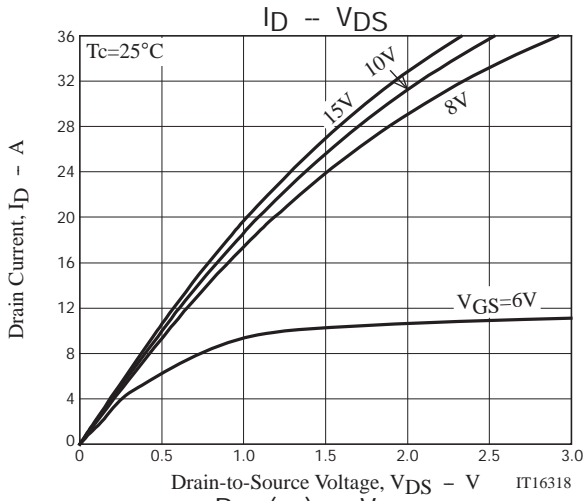
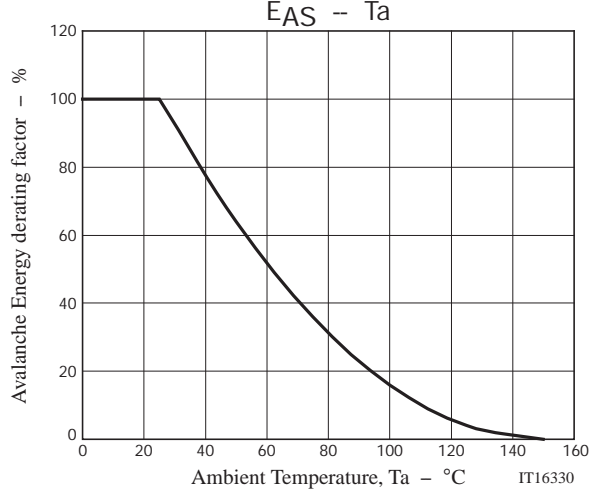
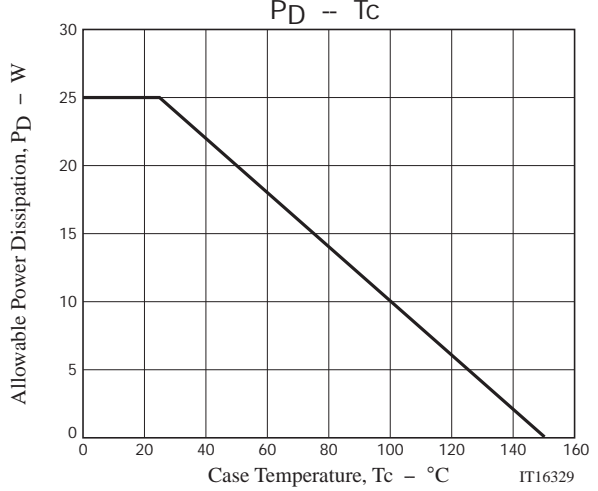
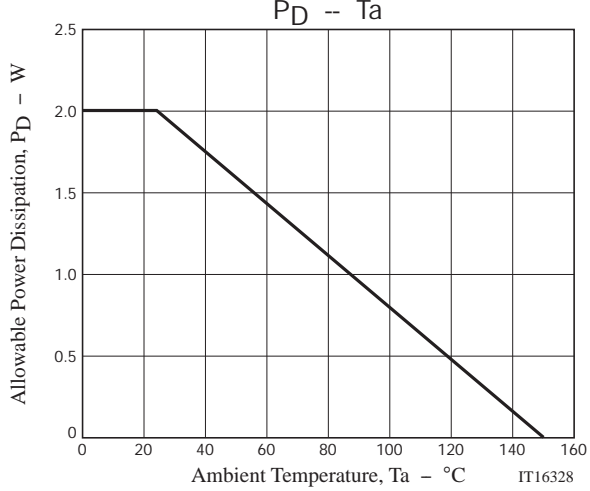
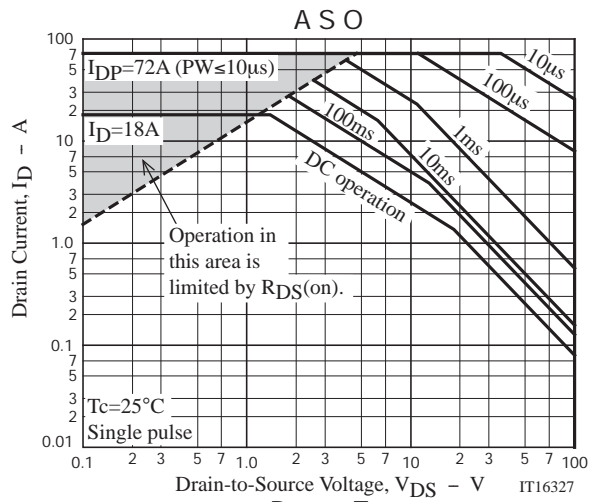
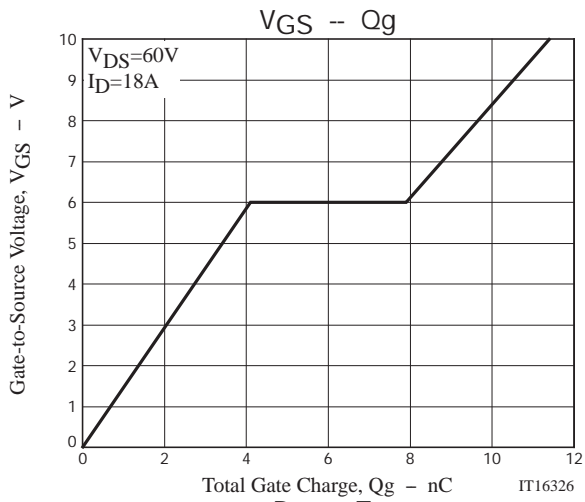


Fig.3 Reverse Recovery Time Test Circuit







Note on usage : Since the BMS4003 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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