



# 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	$V_{GSS}$		$\pm 30$	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

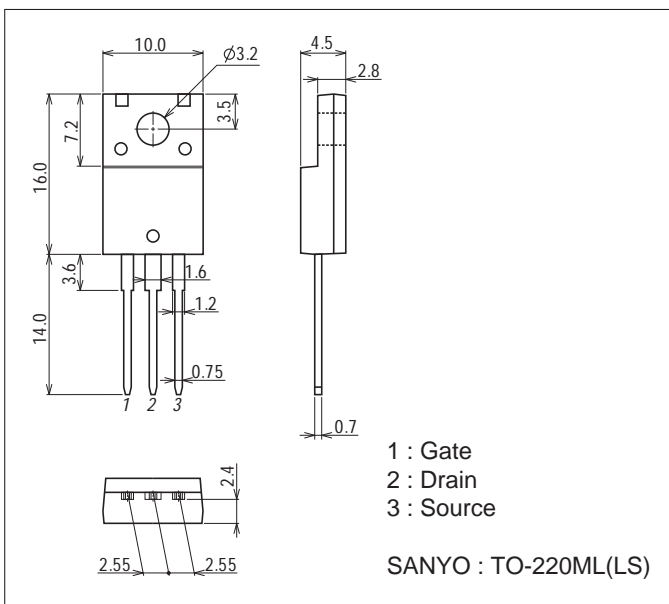
Note : \*1  $V_{DD}=60V$ ,  $L=200\mu H$ ,  $I_{AV}=15A$  (Fig.1)

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

#### Package Dimensions

unit : mm (typ)

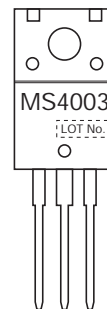
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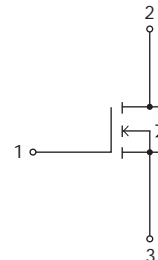
#### Product & Package Information

- 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	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$			$\pm 100$	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

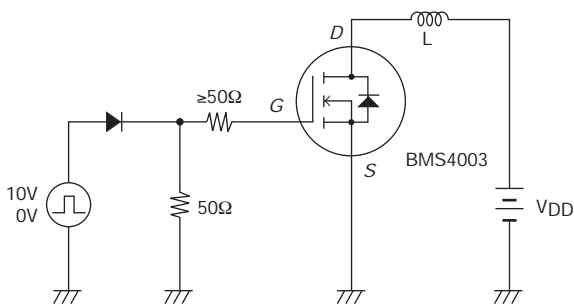


Fig.2 Switching Time Test Circuit

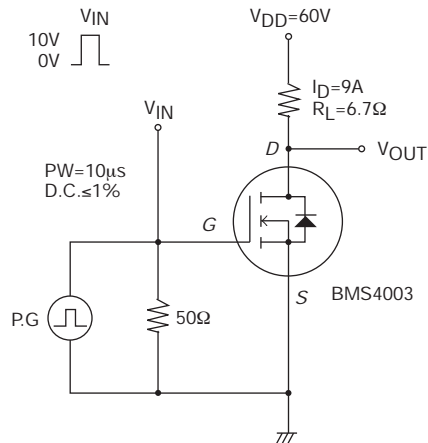
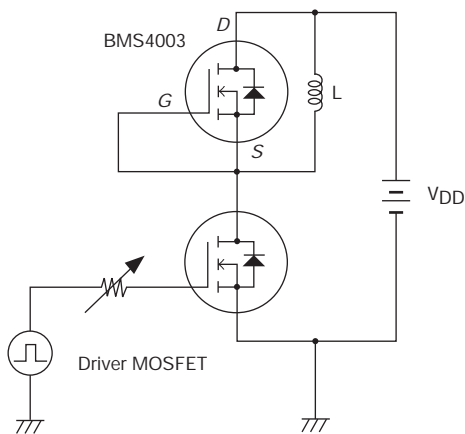
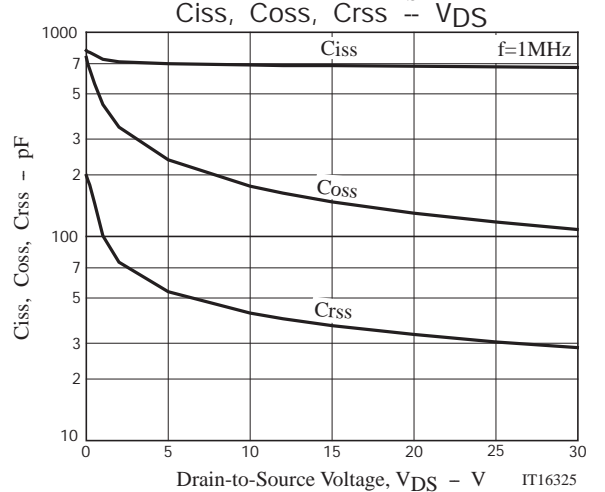
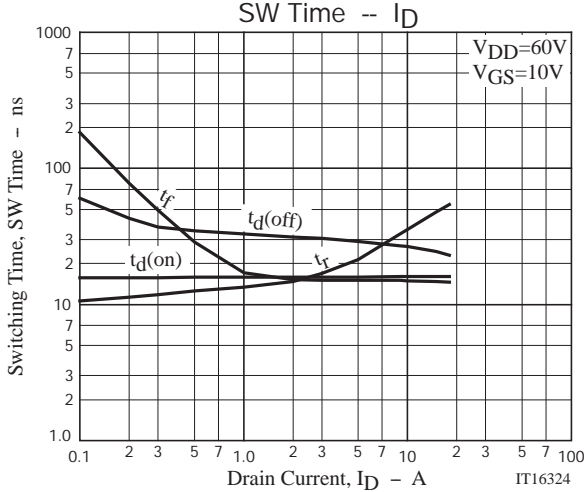
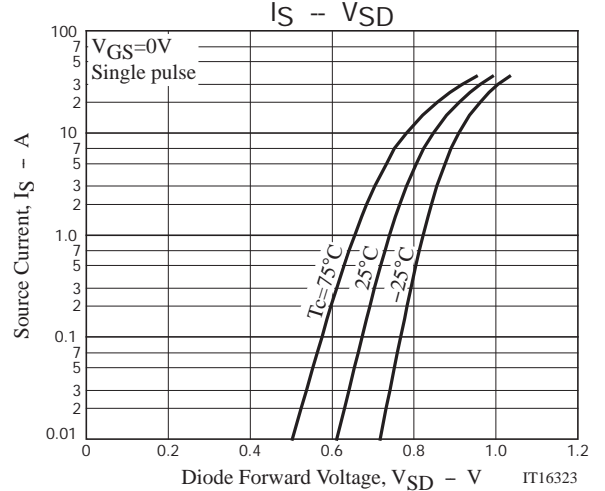
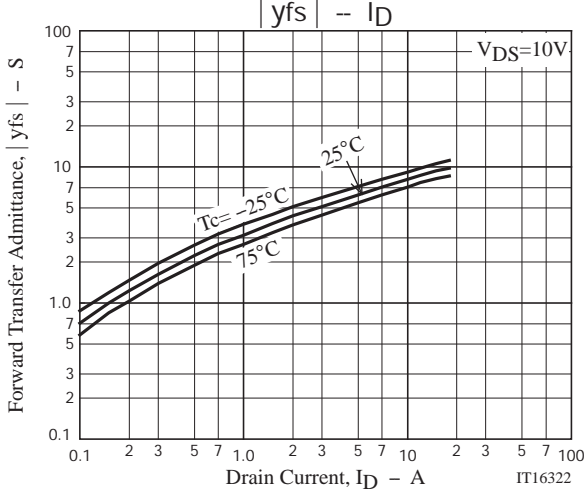
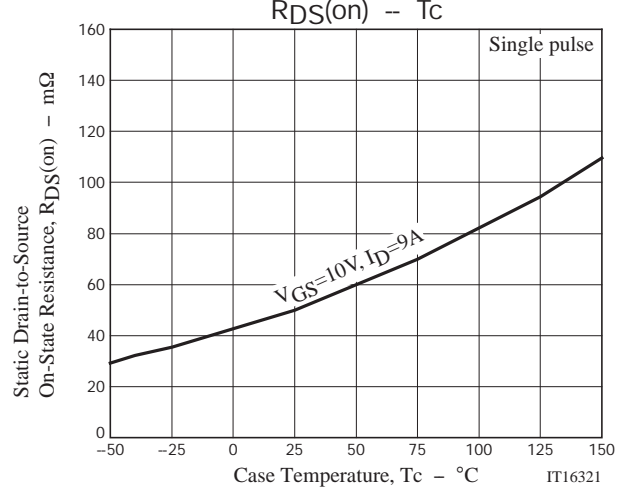
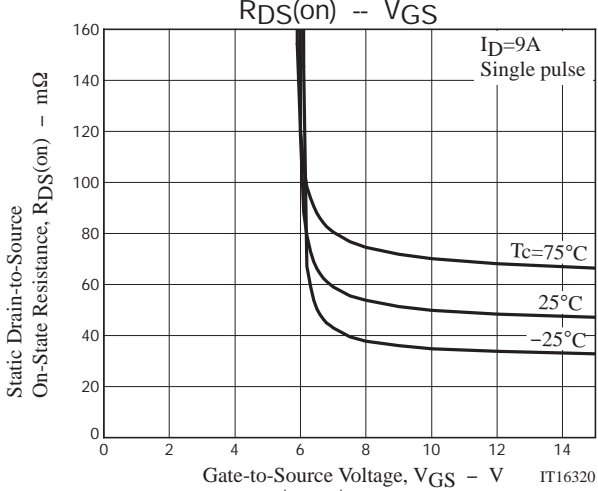
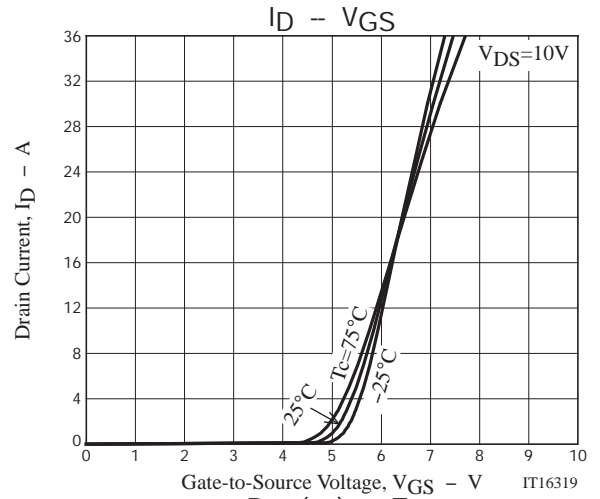
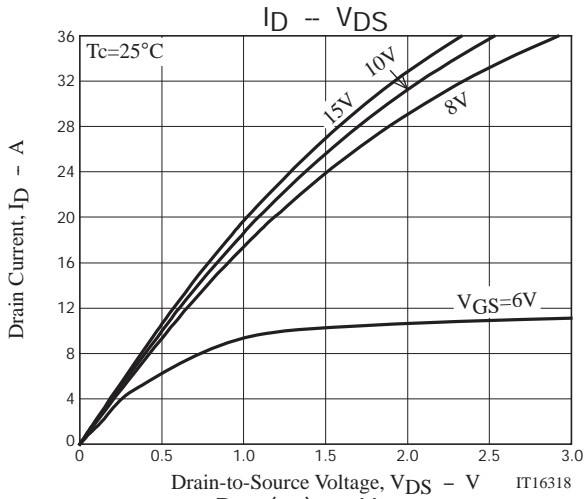
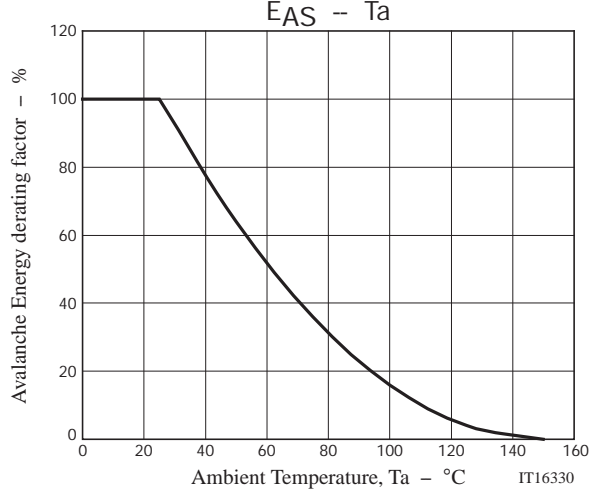
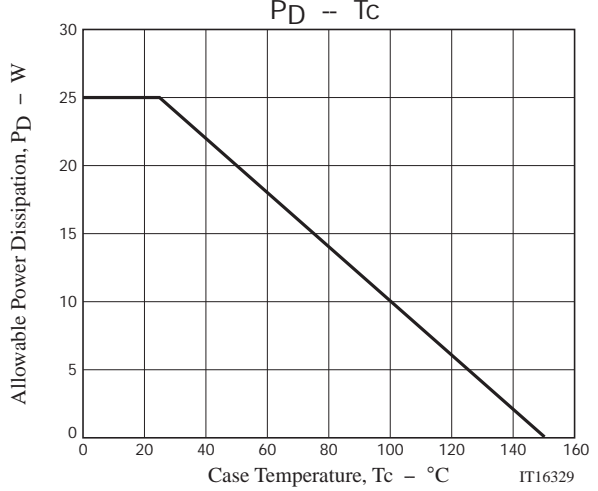
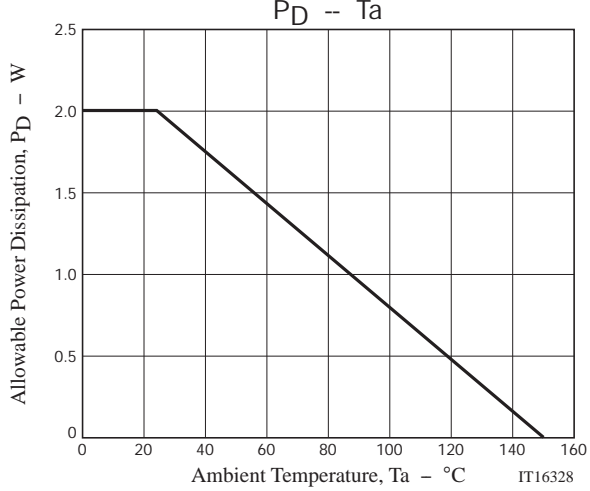
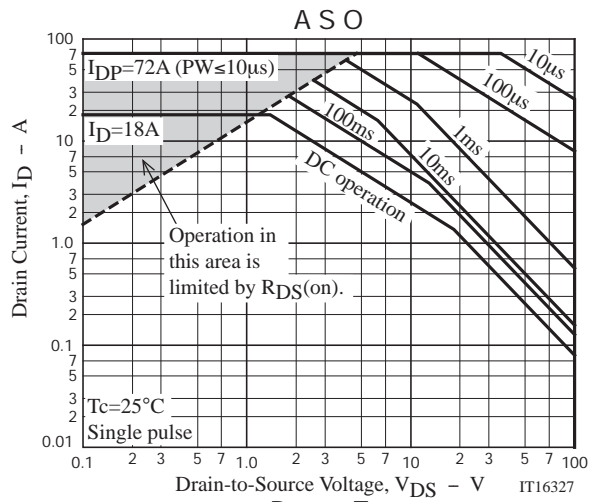
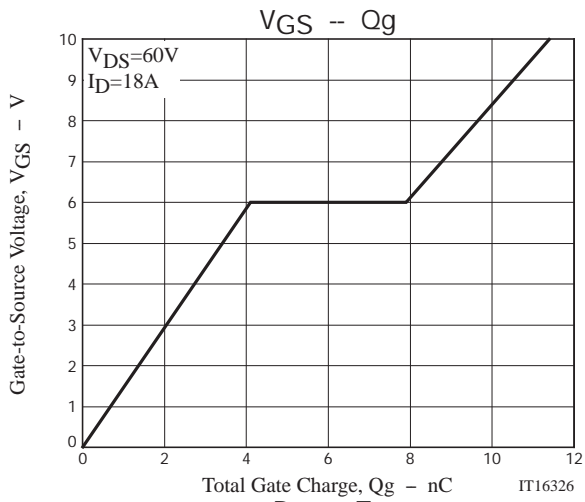


Fig.3 Reverse Recovery Time Test Circuit







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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