

BMS3003 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)} = 5.0\text{m}\Omega$ (typ.)
- Input capacitance $C_{iss} = 13200\text{pF}$ (typ.)
- 4V drive

Specifications

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

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		-78	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-312	A
Allowable Power Dissipation	PD		2.0	W
		$T_C = 25^\circ C$	40	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		420	mJ
Avalanche Current *2	I_{AV}		-60	A

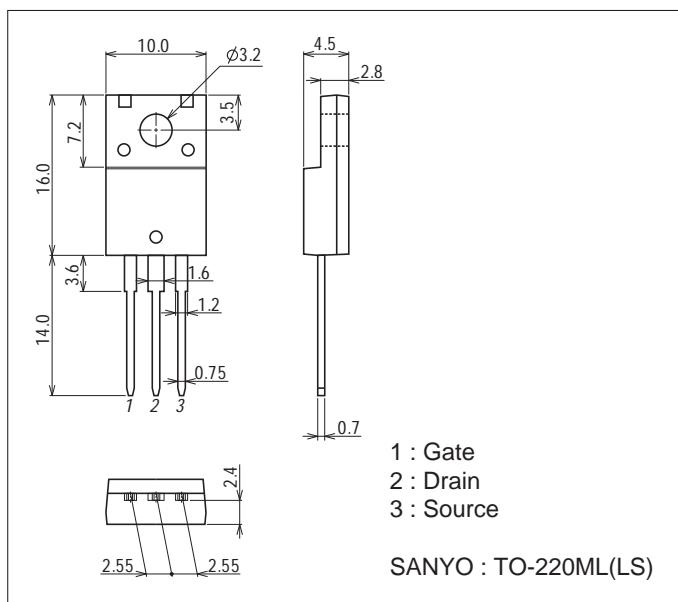
Note : *1 $V_{DD} = -36V$, $L = 100\mu H$, $I_{AV} = -60A$ (Fig.1)

*2 L≤100μH, Single pulse

Package Dimensions

unit : mm (typ)

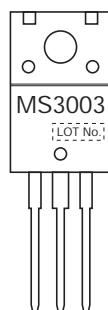
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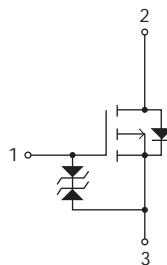
Product & Package Information

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

Marking



Electrical Connection



Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	IDL=−1mA, VGS=0V	−60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=−60V, VGS=0V			−10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=−10V, ID=−1mA	−1.2		−2.6	V
Forward Transfer Admittance	yfs	VDS=−10V, ID=−39A		130		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=−39A, VGS=−10V		5.0	6.5	mΩ
	RDS(on)2	ID=−39A, VGS=−4V		6.5	9.0	mΩ
Input Capacitance	Ciss	VDS=−20V, f=1MHz		13200		pF
Output Capacitance	Coss			1300		pF
Reverse Transfer Capacitance	Crss			950		pF
Turn-ON Delay Time	td(on)	See Fig.2		90		ns
Rise Time	tr			360		ns
Turn-OFF Delay Time	td(off)			1200		ns
Fall Time	tf			680		ns
Total Gate Charge	Qg	VDS=−36V, VGS=−10V, ID=−78A		285		nC
Gate-to-Source Charge	Qgs			35		nC
Gate-to-Drain “Miller” Charge	Qgd			70		nC
Diode Forward Voltage	VSD	IS=−78A, VGS=0V		−0.95	−1.5	V
Reverse Recovery Time	t _{rr}	See Fig.3		150		ns
Reverse Recovery Charge	Q _{rr}	IS=−78A, VGS=0V, di/dt=−100A/μs		470		nC

Fig.1 Avalanche Resistance Test Circuit

Fig.2 Switching Time Test Circuit

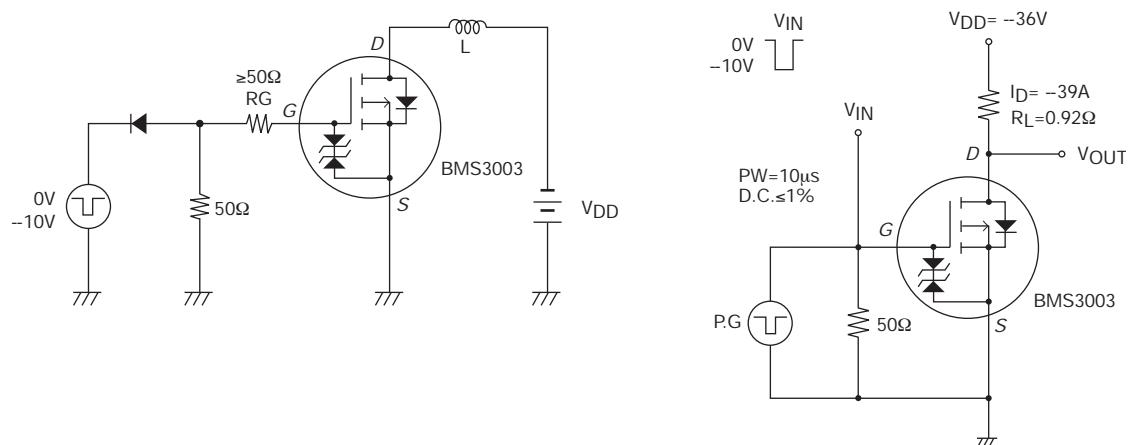
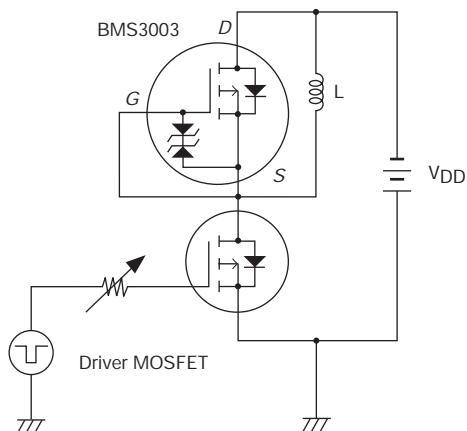
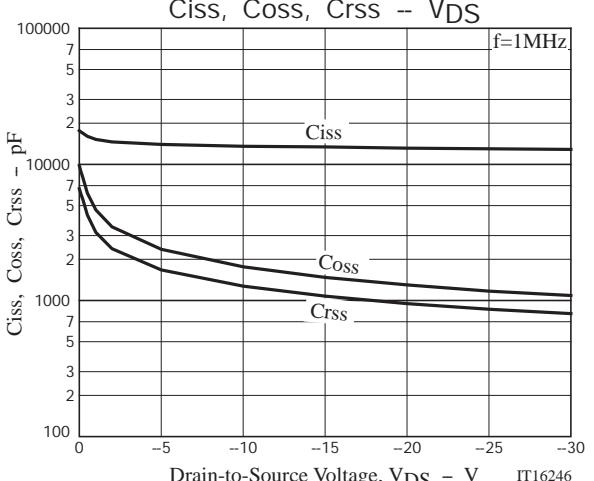
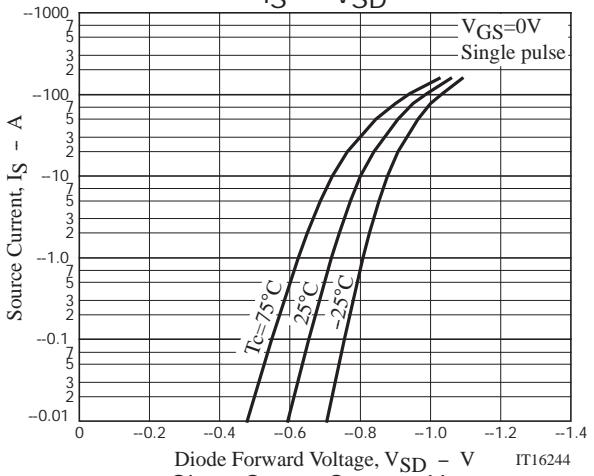
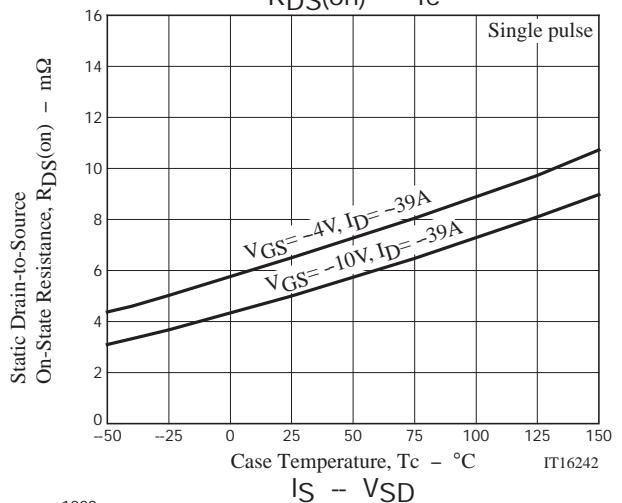
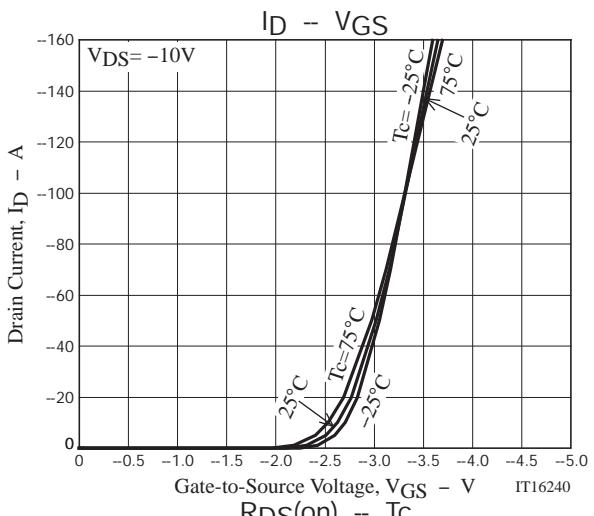
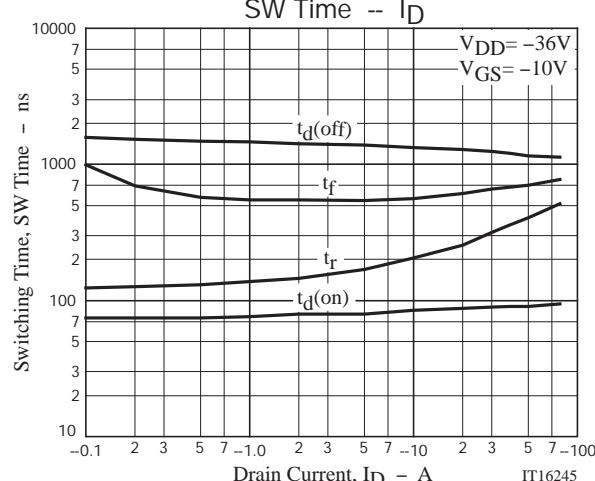
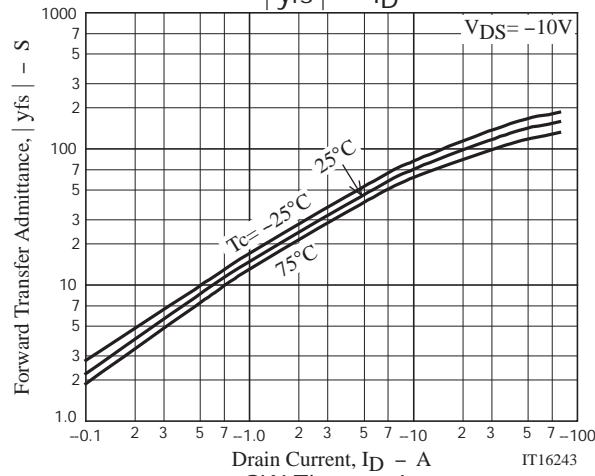
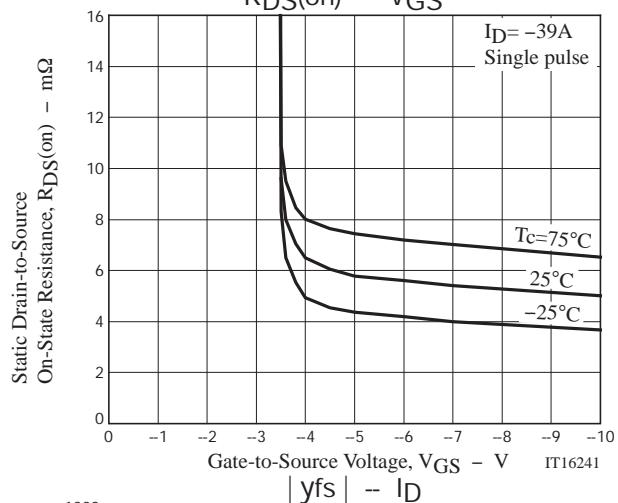
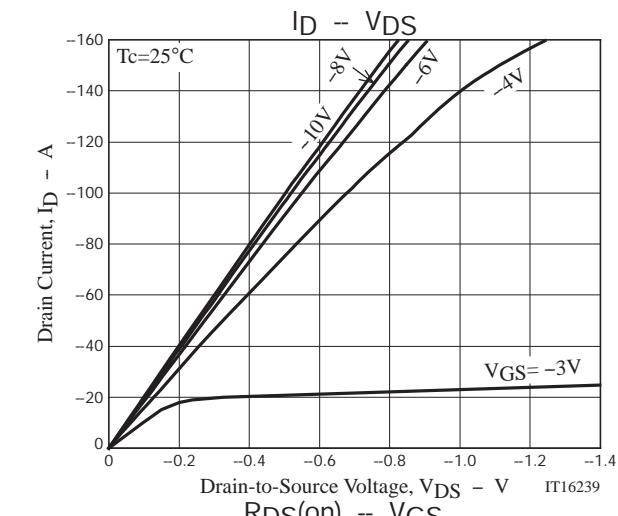
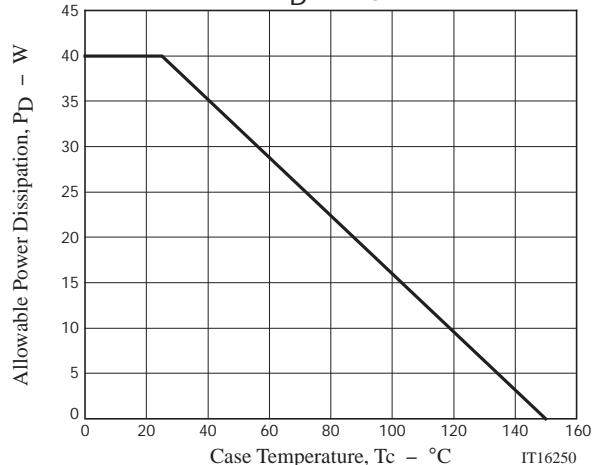
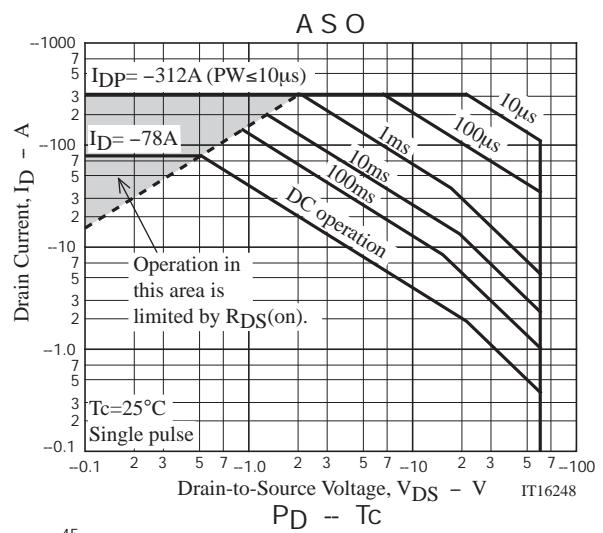
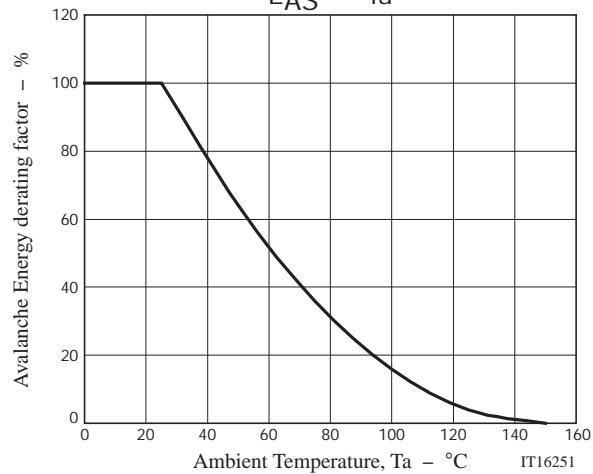
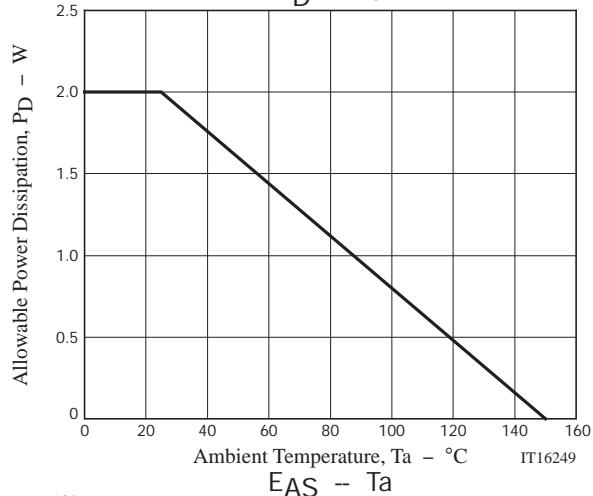
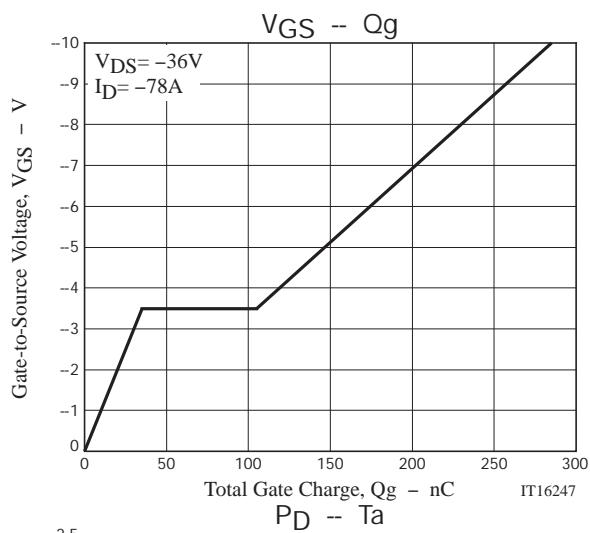


Fig.3 Reverse Recovery Time Test Circuit







Note on usage : Since the BMS3003 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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