



BMS3003

P-Channel Power MOSFET -60V, -78A, 6.5mΩ, TO-220F-3SG

ON Semiconductor®

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Features

- ON-resistance $R_{DS(on)1}=5.0m\Omega$ (typ.)
- Input capacitance $C_{iss}=13200pF$ (typ.)
- -4V drive

Specifications

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

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)

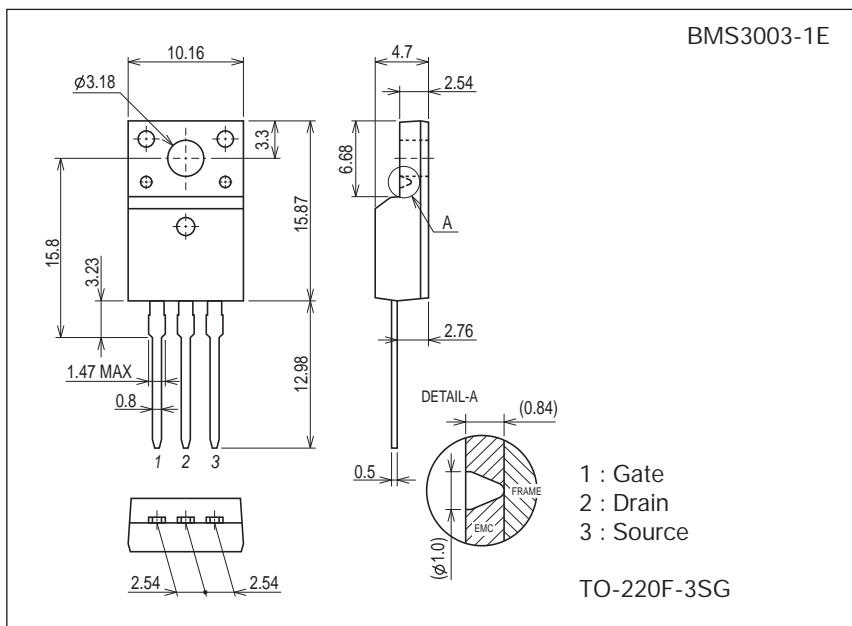
*2 $L \leq 100\mu H$, Single pulse

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Package Dimensions

unit : mm (typ.)

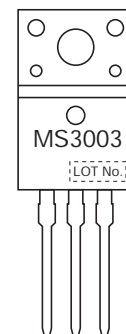
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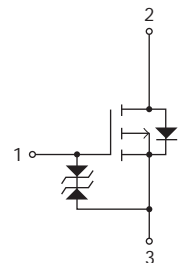
Product & Package Information

- Package : TO-220F-3SG
- JEITA, JEDEC : SC-67
- Minimum Packing Quantity : 50 pcs./tube

Marking



Electrical Connection



ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

BMS3003

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60\text{V}, V_{GS} = 0\text{V}$			-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} $	$V_{DS} = -10\text{V}, I_D = -39\text{A}$		130		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D = -39\text{A}, V_{GS} = -10\text{V}$		5.0	6.5	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -39\text{A}, V_{GS} = -4\text{V}$		6.5	9.0	$\text{m}\Omega$
Input Capacitance	C_{iss}			13200		pF
Output Capacitance	C_{oss}	$V_{DS} = -20\text{V}, f = 1\text{MHz}$		1300		pF
Reverse Transfer Capacitance	C_{rss}			950		pF
Turn-ON Delay Time	$t_{d(on)}$	See Fig.2		90		ns
Rise Time	t_r			360		ns
Turn-OFF Delay Time	$t_{d(off)}$			1200		ns
Fall Time	t_f			680		ns
Total Gate Charge	Q_g				285	
Gate to Source Charge	Q_{gs}	$V_{DS} = -36\text{V}, V_{GS} = -10\text{V}, I_D = -78\text{A}$		35		nC
Gate to Drain "Miller" Charge	Q_{gd}			70		nC
Diode Forward Voltage	V_{SD}	$I_S = -78\text{A}, V_{GS} = 0\text{V}$		-0.95	-1.5	V
Reverse Recovery Time	t_{rr}	See Fig.3		150		ns
Reverse Recovery Charge	Q_{rr}	$I_S = -78\text{A}, V_{GS} = 0\text{V}, di/dt = -100\text{A}/\mu\text{s}$		470		nC

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Fig.1 Unclamped Inductive Switching Test Circuit

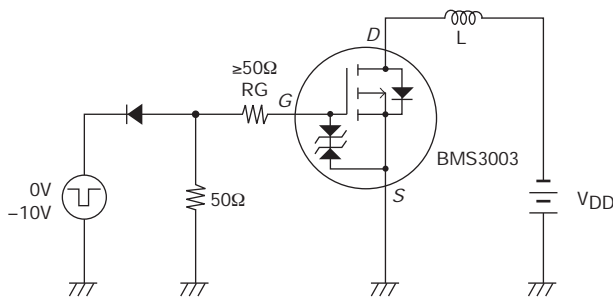


Fig.2 Switching Time Test Circuit

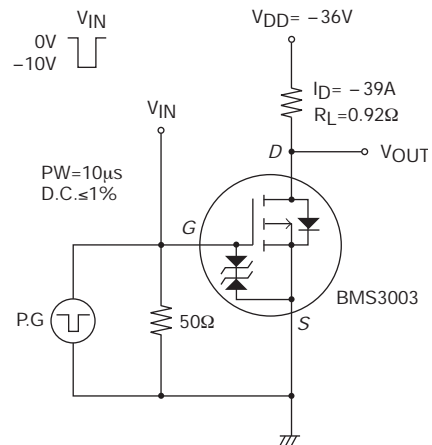
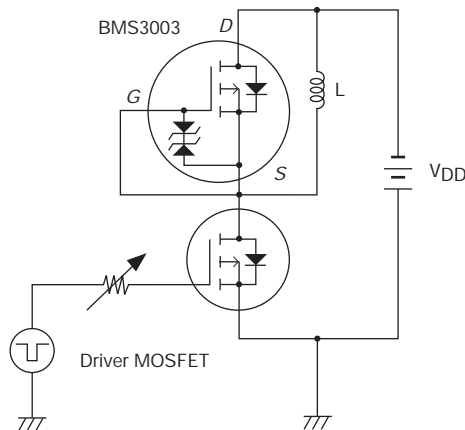


Fig.3 Reverse Recovery Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
BMS3003-1E	TO-220F-3SG	50pcs./tube	Pb Free

