



BBL4001 — N-Channel Silicon MOSFET

General-Purpose Switching Device

Applications

Features

- Low ON-resistance.
- Motor drive.
- Avalanche resistance guarantee.

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		74	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	296	A
Allowable Power Dissipation	PD		2.0	W
		$T_c=25^\circ\text{C}$	35	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		370	mJ
Avalanche Current *2	I_{AV}		65	A

Note : *1 $V_{DD}=30\text{V}$, $L=100\mu\text{H}$, $I_{AV}=65\text{A}$

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

Electrical Characteristics at $T_a=25^\circ\text{C}$

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}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA

Marking : BL4001

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BBL4001

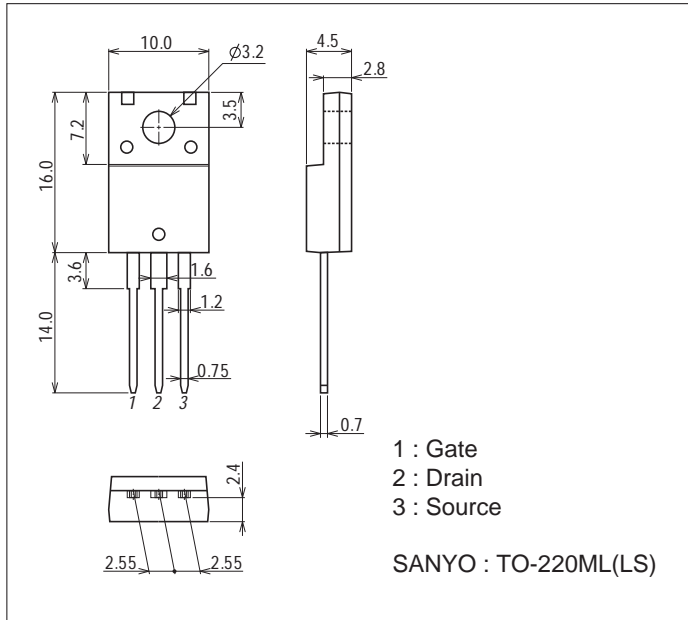
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=37A$	32	53		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=37A, V_{GS}=10V$		4.7	6.1	$m\Omega$
	$R_{DS(on)2}$	$I_D=37A, V_{GS}=4V$		7.0	9.8	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		6900		μF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		740		μF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		540		μF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		48		ns
Rise Time	t_r	See specified Test Circuit.		300		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		510		ns
Fall Time	t_f	See specified Test Circuit.		340		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=74A$		135		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=30V, V_{GS}=10V, I_D=74A$		18		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=30V, V_{GS}=10V, I_D=74A$		32		nC
Diode Forward Voltage	V_{SD}	$I_S=74A, V_{GS}=0V$		1.0	1.2	V

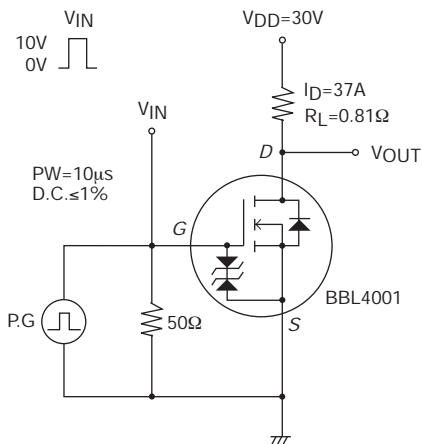
Package Dimensions

unit : mm (typ)

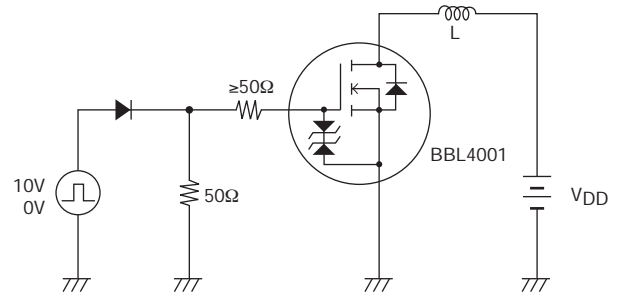
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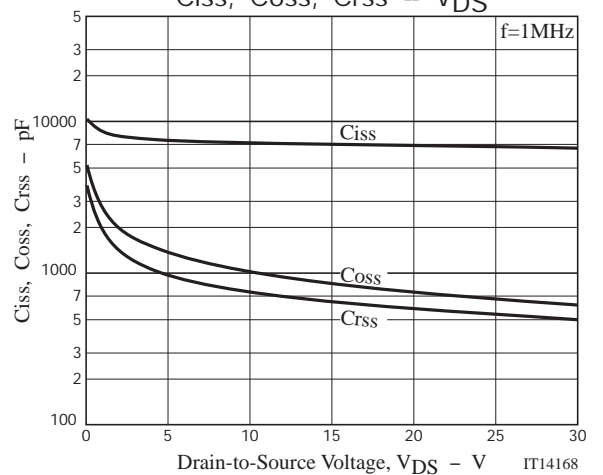
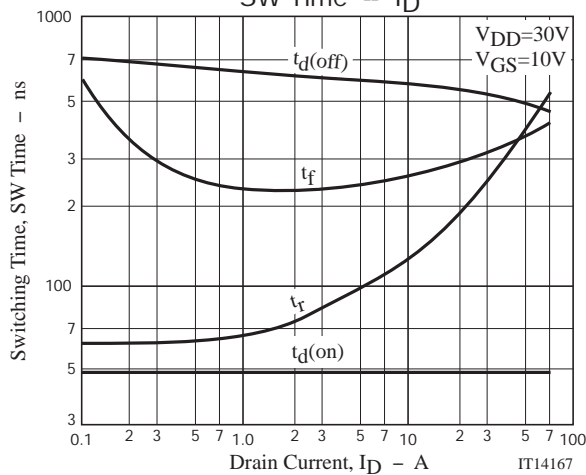
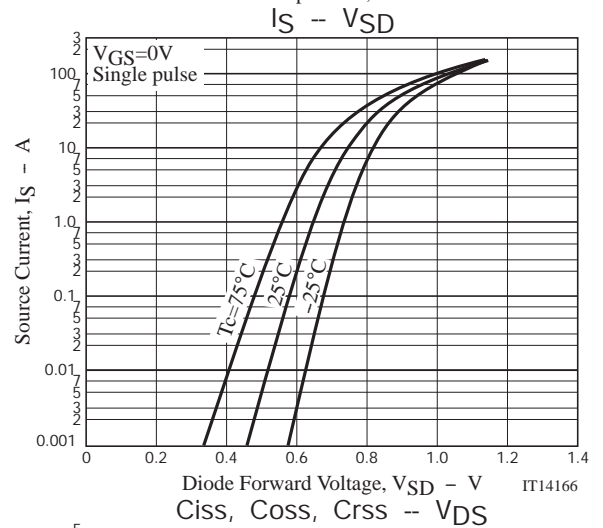
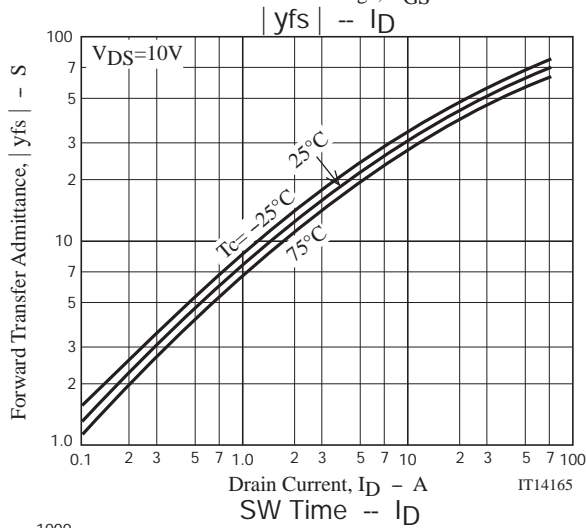
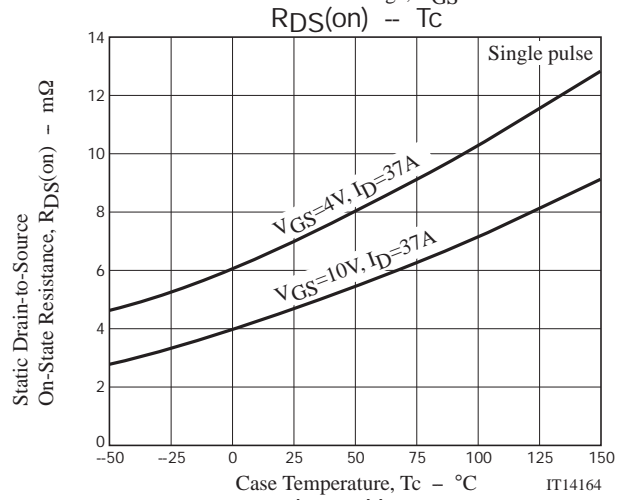
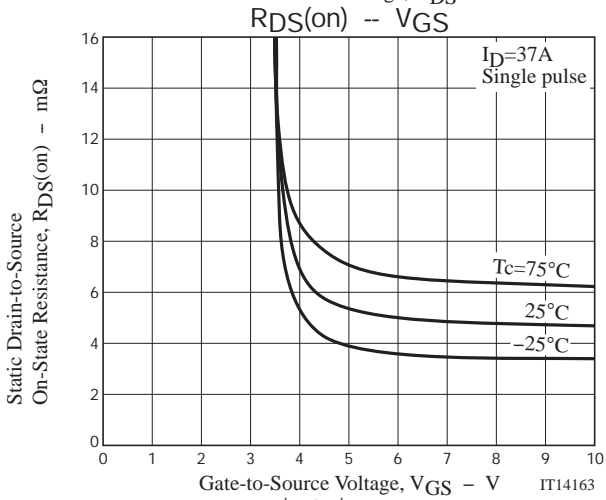
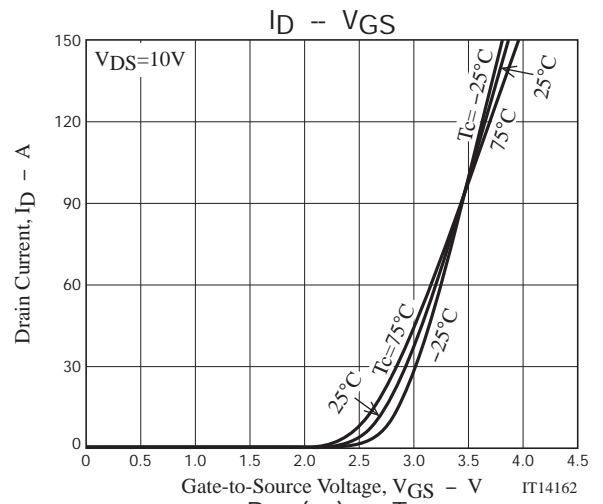
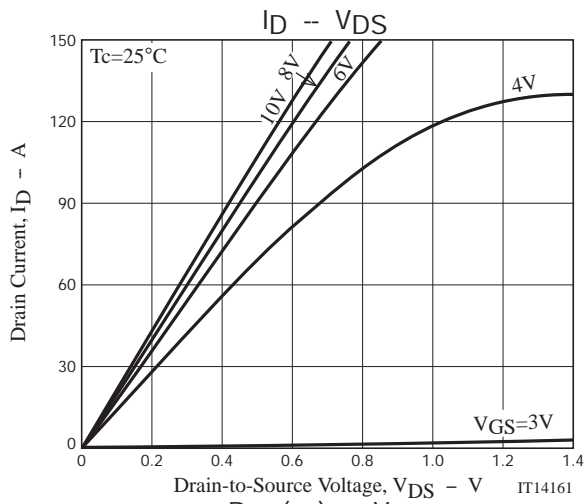


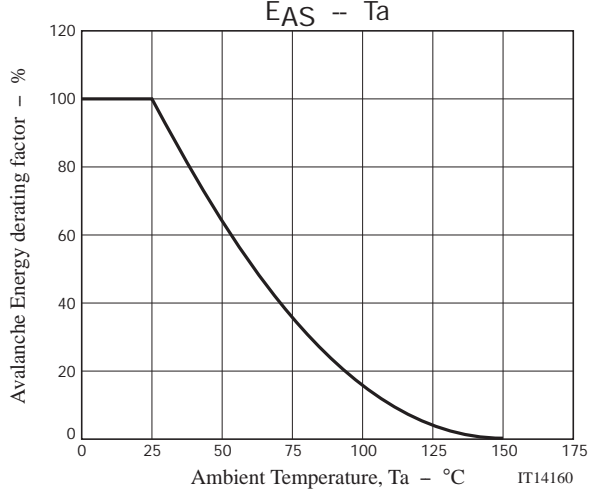
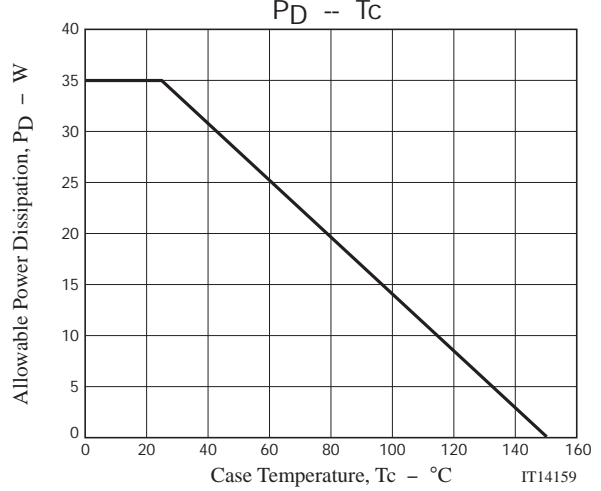
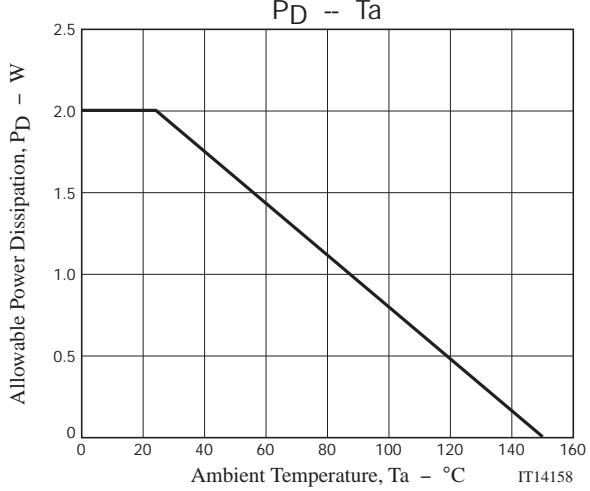
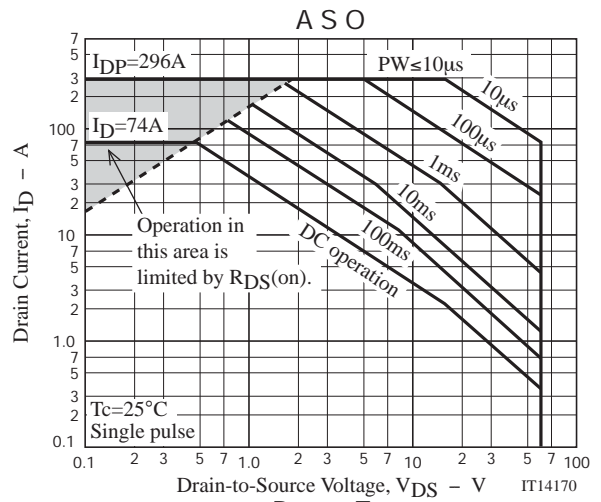
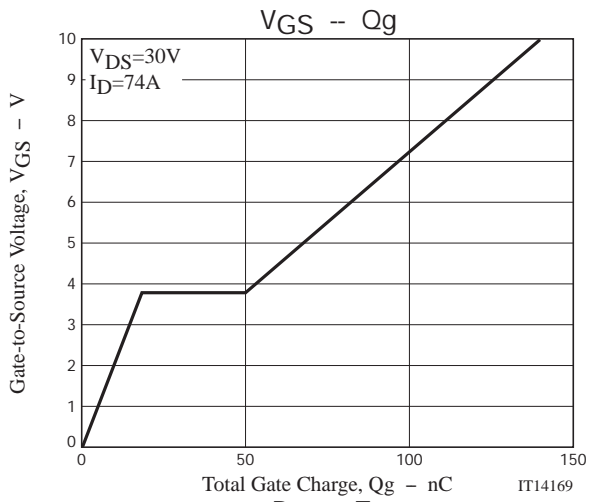
Switching Time Test Circuit



Avalanche Resistance Test Circuit







Note on usage : Since the BBL4001 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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