



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

BBL4001 — General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°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≤10μs, duty cycle≤1%	296	A
Allowable Power Dissipation	P _D		2.0	W
		Tc=25°C	35	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E _{AS}		370	mJ
Avalanche Current *2	I _{AV}		65	A

Note : *1 V_{DD}=30V, L=100μH, I_{AV}=65A

*2 L≤100μH, Single pulse

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	60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA

Marking : BL4001

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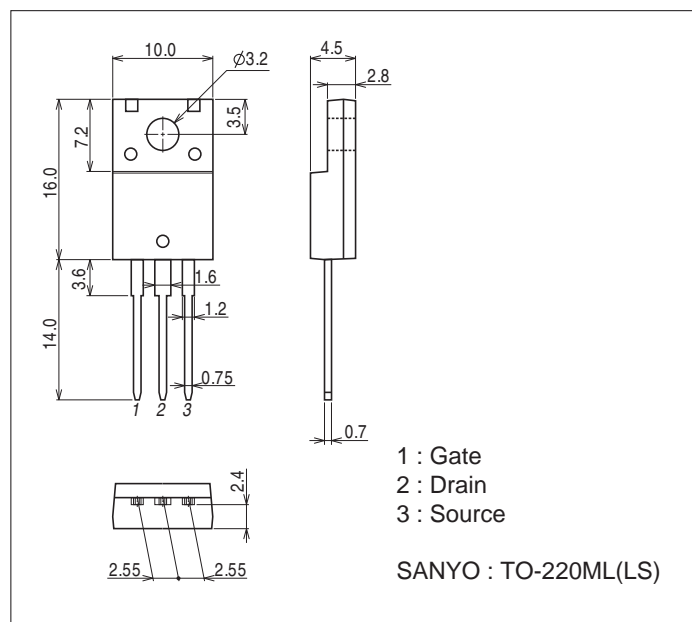
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=37A$	32	53		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=37A, V_{GS}=10V$		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		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		740		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		540		pF
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

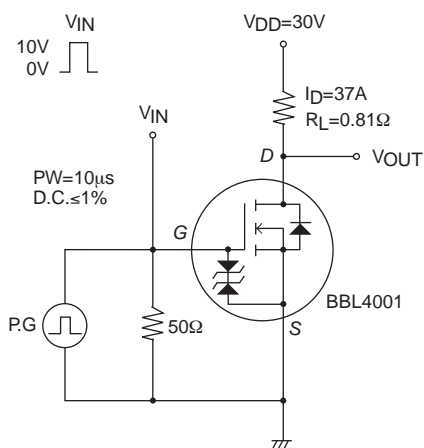
Package Dimensions

unit : mm (typ)

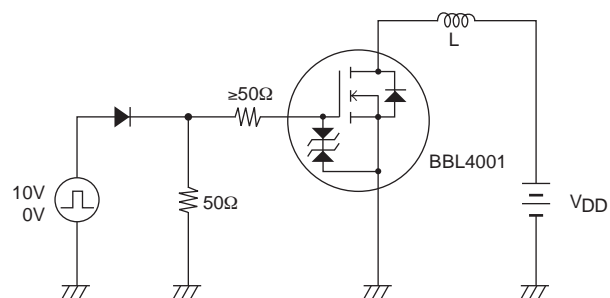
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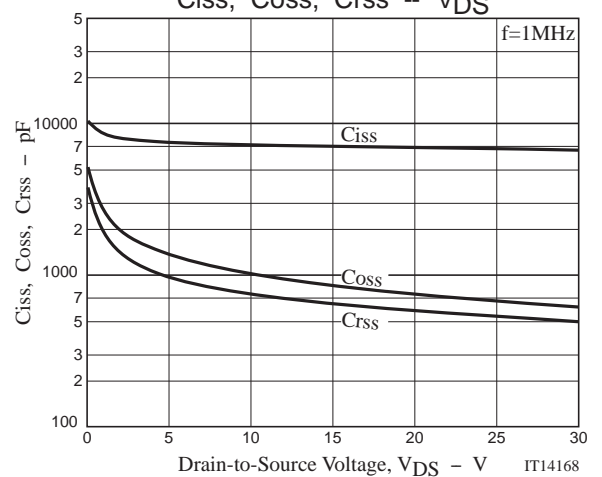
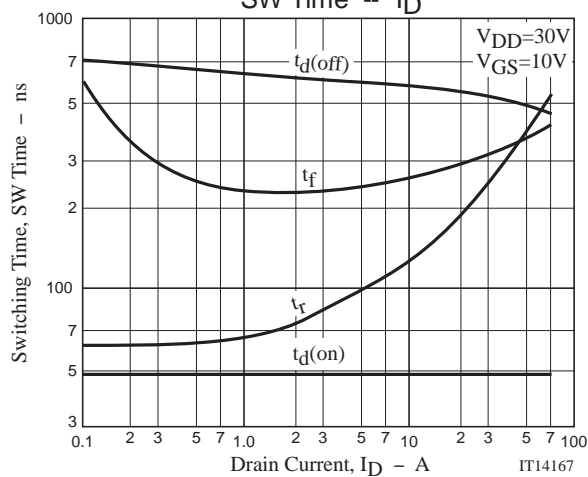
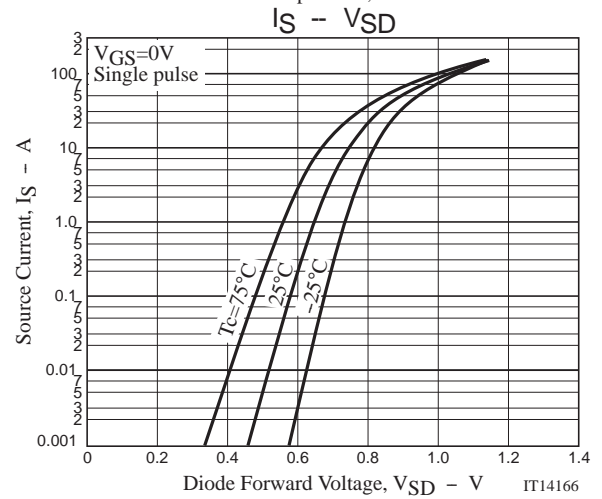
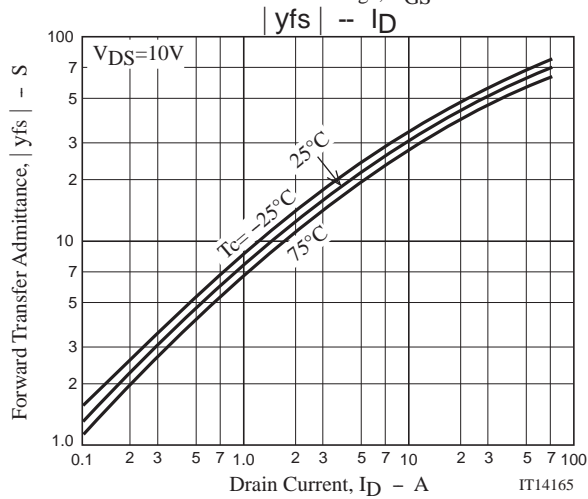
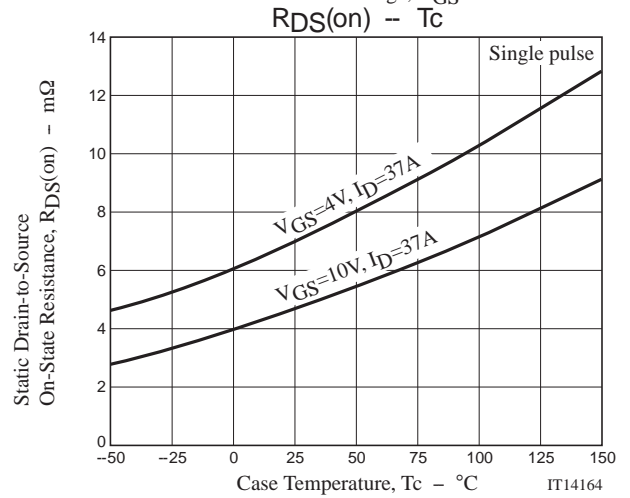
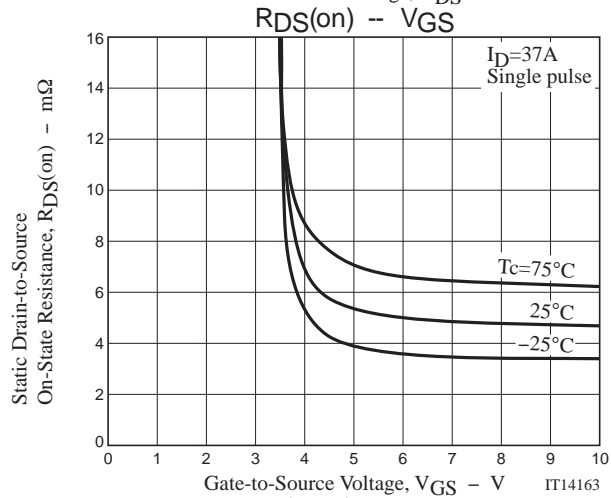
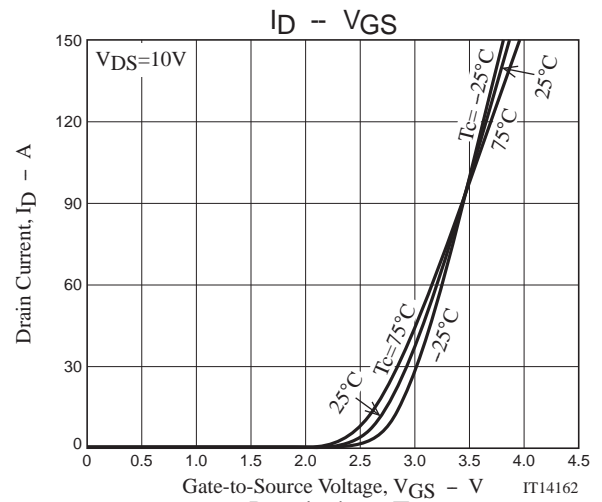
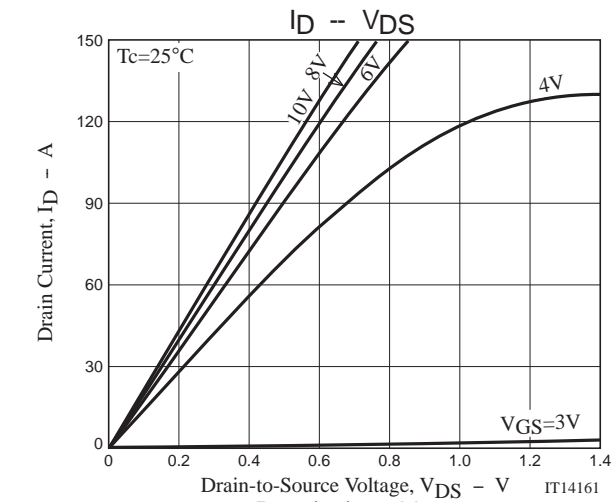


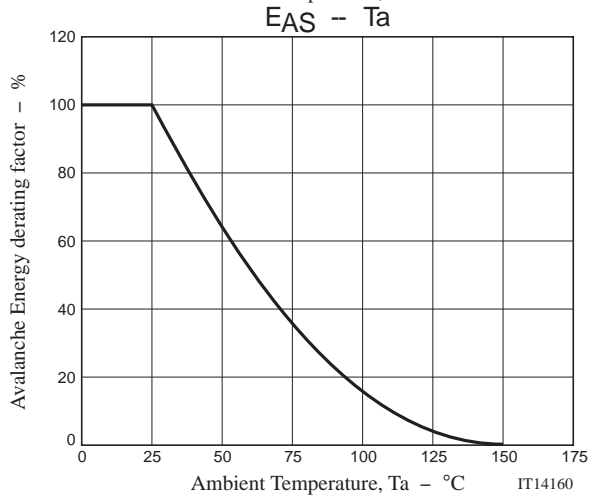
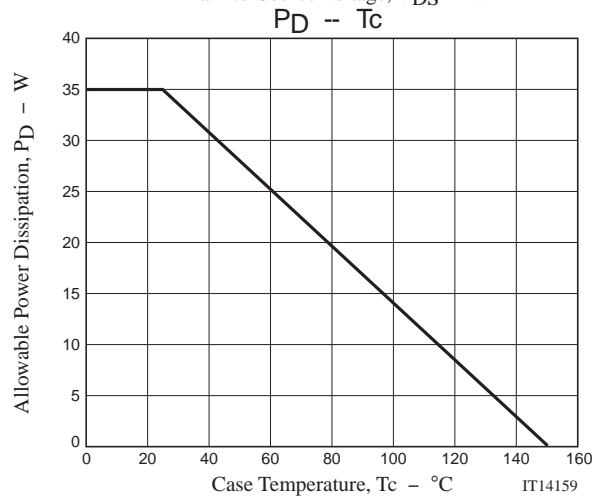
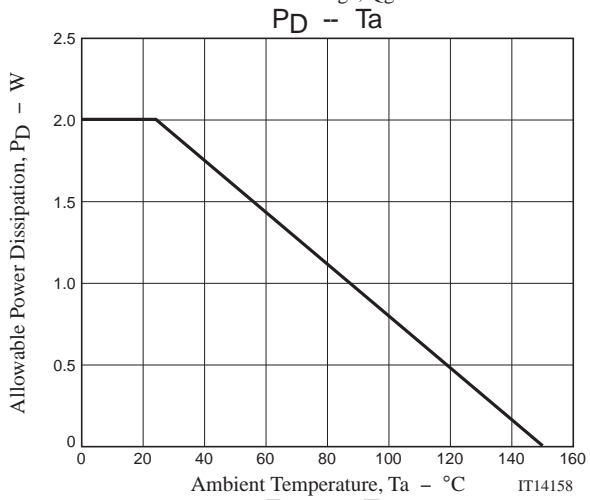
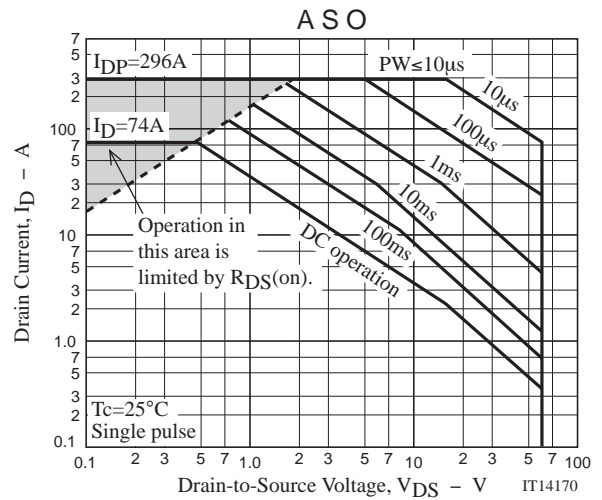
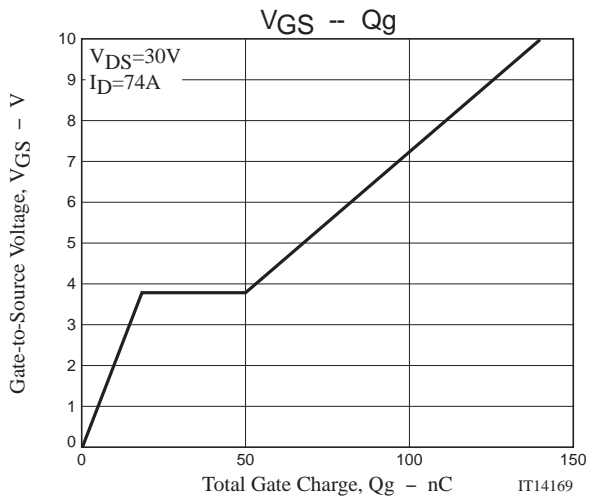
Switching Time Test Circuit



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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