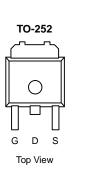
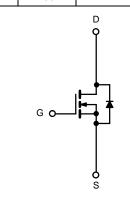


GJ85L02H-VB Datasheet N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY					
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A) ^{a, e}	Q _g (Typ)		
30	0.002 at V _{GS} = 10 V	100	72 nC		
30	0.003 at V _{GS} = 4.5 V	90	72110		





N-Channel MOSFET

FEATURES

- ٠ Trench Power MOSFET
- 100 % R_g and UIS Tested
- Compliant to RoHS Directive 2011/65/EU ٠

APPLICATIONS

- OR-ing
- Server
- DC/DC

Parameter		Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	30	V		
Gate-Source Voltage		V _{GS}	± 20	V	
	T _C = 25 °C		100 ^{a, e}		
Continuous Droin Current (T $= 175$ °C)	T _C = 70 °C		80 ^e		
Continuous Drain Current ($T_J = 175 \ ^{\circ}C$)	T _A = 25 °C	I _D	35.8 ^{b, c}	A	
	T _A = 70 °C		27 ^{b, c}	A	
Pulsed Drain Current	I _{DM}	300			
Avalanche Current Pulse	L = 0.1 mH	I _{AS}	39		
Single Pulse Avalanche Energy	L = 0.1 MH	E _{AS}	94.8	mJ	
Continuous Source-Drain Diode Current	T _C = 25 °C	1	90 ^{a, e}	^	
Continuous Source-Drain Diode Current	T _A = 25 °C	I _S	3.13 ^{b, c}	— A	
	T _C = 25 °C		235 ^a		
Mauianua Davia Diasia atian	T _C = 70 °C	P _D	165	10/	
Maximum Power Dissipation	T _A = 25 °C	۲D	3.75 ^{b, c}	W	
	T _A = 70 °C		2.63 ^{b, c}		
Operating Junction and Storage Temperature Ra	ange	T _J , T _{stg}	- 55 to 175	°C	

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Тур.	Max.	Unit	
Maximum Junction-to-Ambient ^{b, d}	$t \le 10 \text{ sec}$	R _{thJA}	32	40	°C/W	
Maximum Junction-to-Case	Steady State	R _{thJC}	0.5	0.6	0/10	

Notes:

a. Based on $T_C = 25 \text{ °C}$. b. Surface mounted on 1" x 1" FR4 board.

a. t = 10 sec.
d. Maximum under steady state conditions is 90 °C/W.
e. Calculated based on maximum junction temperature. Package limitation current is 90 A.

SPECIFICATIONS ($T_J = 25 \text{ °C}$, Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static	Symbol	Test conditions	IVIIII.	Typ.	IVIAA.	Unit	
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	30			V	
V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$			35		- mV/°(
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J	I _D = 250 μA		- 7.5			
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = 250 \ \mu A$	1.5	-	2.5	V	
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA	
		$V_{\rm DS} = 30 \text{ V}, \text{ V}_{\rm GS} = 0 \text{ V}$			1	μA	
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = 30 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 55 \text{ °C}$			10		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 V, V_{GS} = 10 V$	90			A	
		V _{GS} = 10 V, I _D = 38.8 A		0.002		Ω	
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 4.5 V, I _D = 37 A		0.003			
Forward Transconductance ^a	9 _{fs}	V _{DS} = 15 V, I _D = 38.8 A		160		S	
Dynamic ^b	1				1		
Input Capacitance	C _{iss}			5201			
Output Capacitance	C _{oss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz		1525		pF	
Reverse Transfer Capacitance	C _{rss}			770			
Total Gate Charge	0	V_{DS} = 15 V, V_{GS} = 10 V, I_{D} = 38.8 A		151	227	nC	
Total Gate Charge	Qg			71.5	103		
Gate-Source Charge	Q _{gs}	V_{DS} = 15 V, V_{GS} = 4.5 V, I_{D} = 28.8 A		30			
Gate-Drain Charge	Q _{gd}			24			
Gate Resistance	Rg	f = 1 MHz		1.4	2.1	Ω	
Turn-On Delay Time	t _{d(on)}			18	27		
Rise Time	t _r	V_{DD} = 15 V, R_L = 0.625 Ω		11	17		
Turn-Off Delay Time	t _{d(off)}	$I_D \cong 24$ A, V_{GEN} = 10 V, R_g = 1 Ω		70	105		
Fall Time	t _f			10	15	ns	
Turn-On Delay Time	t _{d(on)}			55	83		
Rise Time	t _r	V_{DD} = 15 V, R_L = 0.67 Ω		180	270		
Turn-Off Delay Time	t _{d(off)}	$\text{I}_\text{D}\cong$ 22.5 A, V_GEN = 4.5 V, R_g = 1 Ω		55	83		
Fall Time	t _f			12	18		
Drain-Source Body Diode Characteristic	cs						
Continuous Source-Drain Diode Current	۱ _S	$T_{\rm C} = 25 \ ^{\circ}{\rm C}$			120	A	
Pulse Diode Forward Current ^a	I _{SM}				120	А	
Body Diode Voltage	V _{SD}	I _S = 22 A		0.8	1.2	V	
Body Diode Reverse Recovery Time	t _{rr}			52	78	ns	
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = 20 A, di/dt = 100 A/μs, Τ _J = 25 °C		70.2	105	nC	
Reverse Recovery Fall Time	t _a	$r_{\rm F} = 20$ A, $a_{\rm F}a_{\rm F} = 100$ A/µs, $r_{\rm J} = 20$ C		27		200	
Reverse Recovery Rise Time	t _b			25		ns	

Notes:

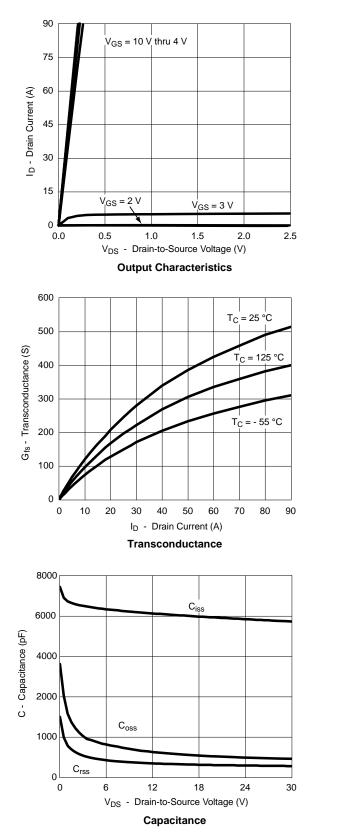
a. Pulse test; pulse width \leq 300 $\mu s,$ duty cycle \leq 2 %.

b. Guaranteed by design, not subject to production testing.

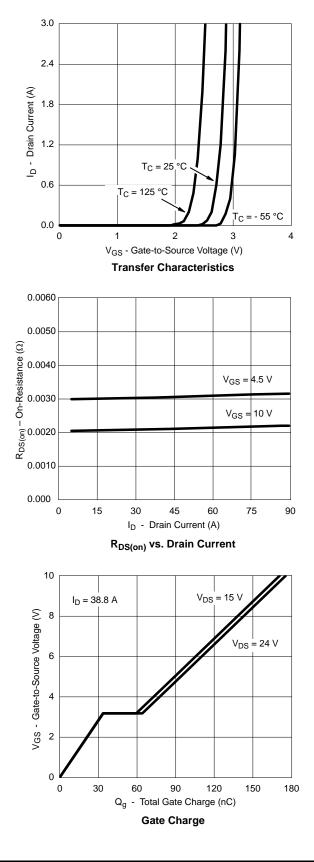
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Bsemi



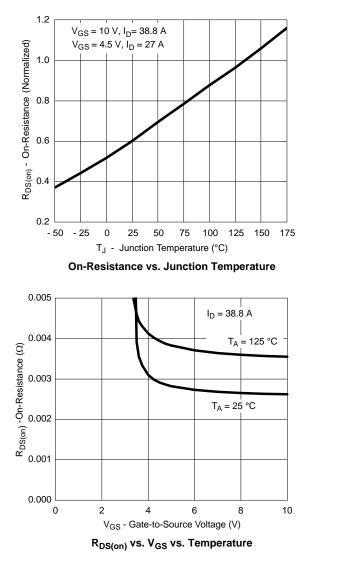


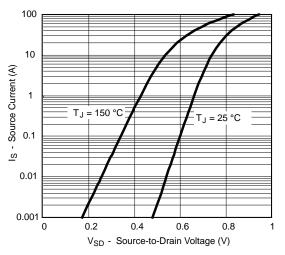
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



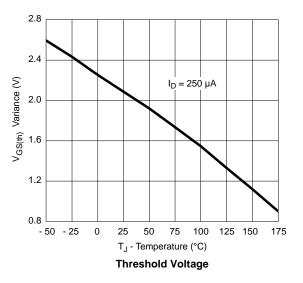


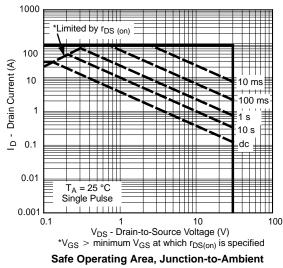




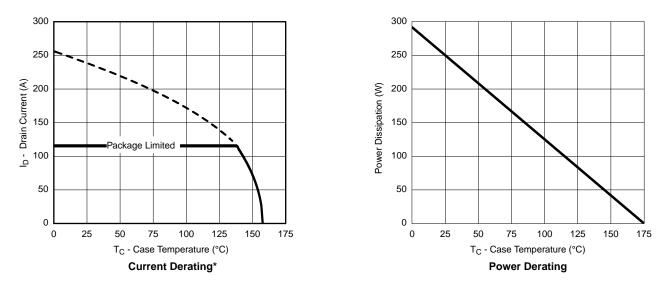


Forward Diode Voltage vs. Temperature









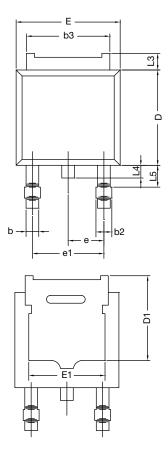
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

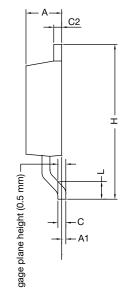
*The power dissipation P_D is based on $T_{J(max)} = 175$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.





TO-252AA CASE OUTLINE





	MILLIN	IETERS	INC	HES
DIM.	MIN.	MAX.	MIN.	MAX.
А	2.18	2.38	0.086	0.094
A1	-	0.127	-	0.005
b	0.64	0.88	0.025	0.035
b2	0.76	1.14	0.030	0.045
b3	4.95	5.46	0.195	0.215
С	0.46	0.61	0.018	0.024
C2	0.46	0.89	0.018	0.035
D	5.97	6.22	0.235	0.245
D1	5.21	-	0.205	-
Е	6.35	6.73	0.250	0.265
E1	4.32	-	0.170	-
Н	9.40	10.41	0.370	0.410
е	2.28	2.28 BSC		BSC
e1	4.56	4.56 BSC		BSC
L	1.40	1.78	0.055	0.070
L3	0.89	1.27	0.035	0.050
L4	-	1.02	-	0.040
L5	1.14	1.52	0.045	0.060
ECN: X12- DWG: 534	0247-Rev. M, 7	24-Dec-12		

Note

• Dimension L3 is for reference only.



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