BSC052N03S G-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	0.003 at V_{GS} = 10 V	120	71 nC
	0.005 at V_{GS} = 4.5 V	90	

FEATURES

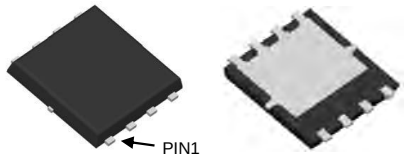
- Trench Power MOSFET
- 100 % R_g and UIS Tested

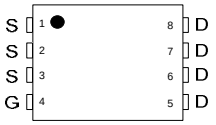
RoHS COMPLIANT

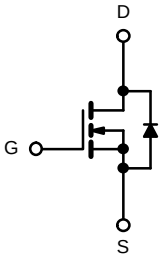
APPLICATIONS

- Notebook PC Core
- VRM/POL

DFN5X6







N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)				
Parameter		**Symbol**	**Limit**	**Unit**
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current (T_J = 175 °C)	T_C = 25 °C	I_D	120[a, e]	A
	T_C = 70 °C		90[e]	
	T_A = 25 °C		21[b, c]	
	T_A = 70 °C		20.8[b, c]	
Pulsed Drain Current		I_{DM}	250	
Avalanche Current Pulse	L = 0.1 mH	I_{AS}	56	
Single Pulse Avalanche Energy		E_{AS}	60	mJ
Continuous Source-Drain Diode Current	T_C = 25 °C	I_S	80[a, e]	A
	T_A = 25 °C		76[b, c]	
Maximum Power Dissipation	T_C = 25 °C	P_D	210[a]	W
	T_C = 70 °C		155	
	T_A = 25 °C		35[b, c]	
	T_A = 70 °C		13[b, c]	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to 175	°C

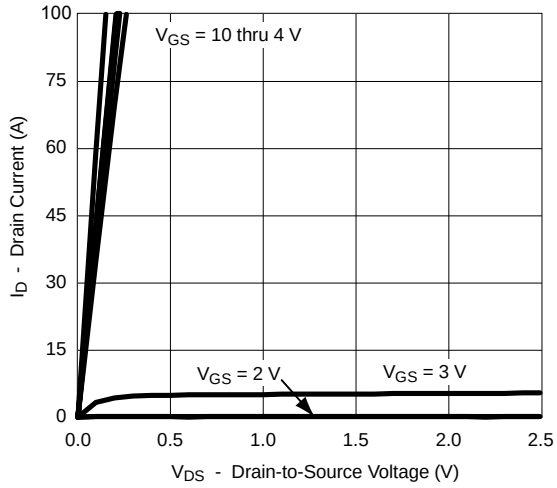
THERMAL RESISTANCE RATINGS					
Parameter		**Symbol**	**Typical**	**Maximum**	**Unit**
Maximum Junction-to-Ambient[b, d]	t ≤ 10 s	R_{thJA}	41	50	°C/W
Maximum Junction-to-Case	Steady State	R_{thJC}	0.7	0.9	

Notes:
a. Based on T_C = 25 °C.
b. Surface mounted on 1" x 1" FR4 board.
c. t = 10 s.
d. Maximum under steady state conditions is 90 °C/W.
e. Calculated based on maximum junction temperature. Package limitation current is 80 A.

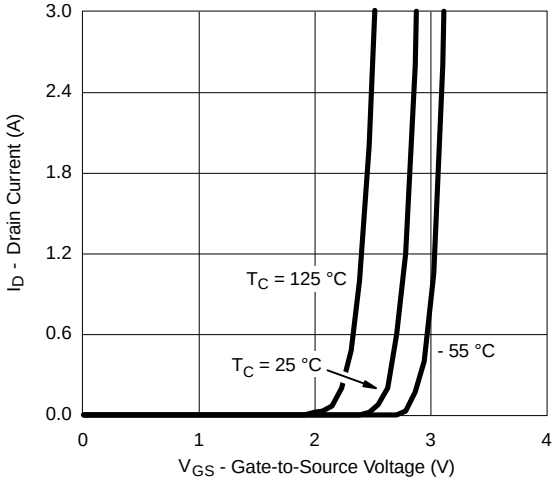
Notes:
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.
b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under “Absolute Maximum Ratings” ma

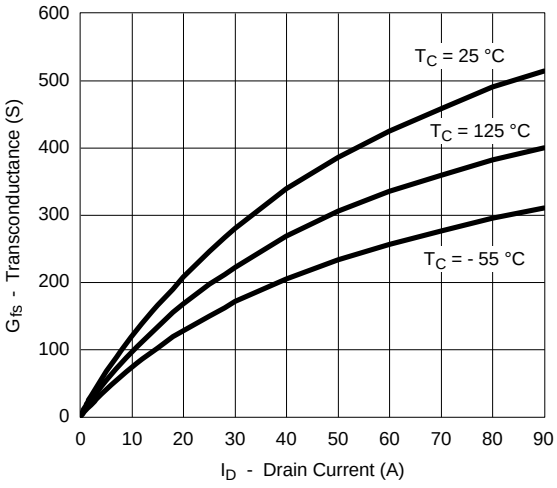
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



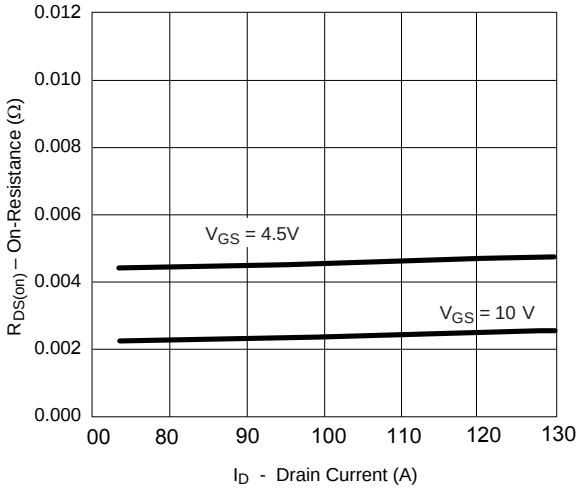
Output Characteristics



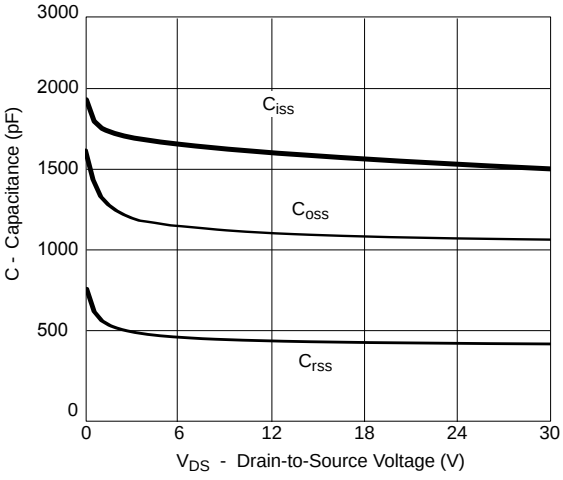
Transfer Characteristics



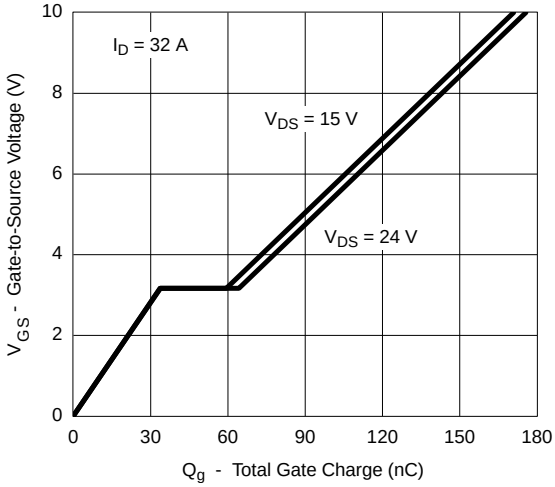
Transconductance



$R_{DS(on)}$ vs. Drain Current

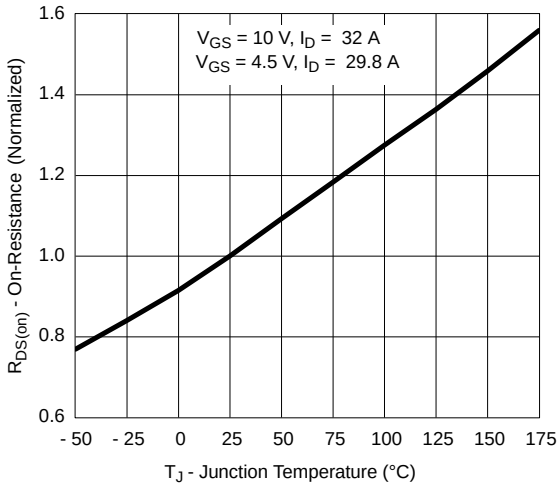


Capacitance

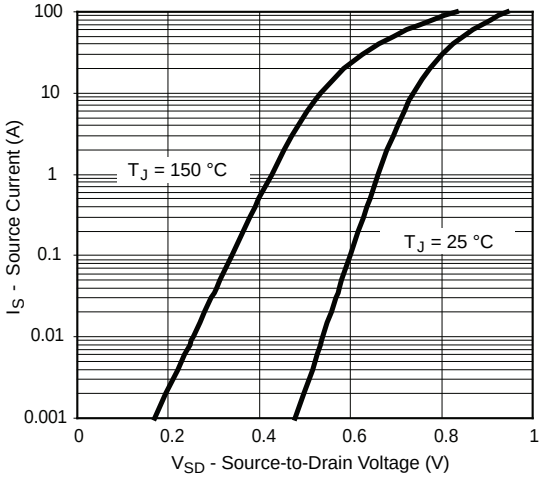


Gate Charge

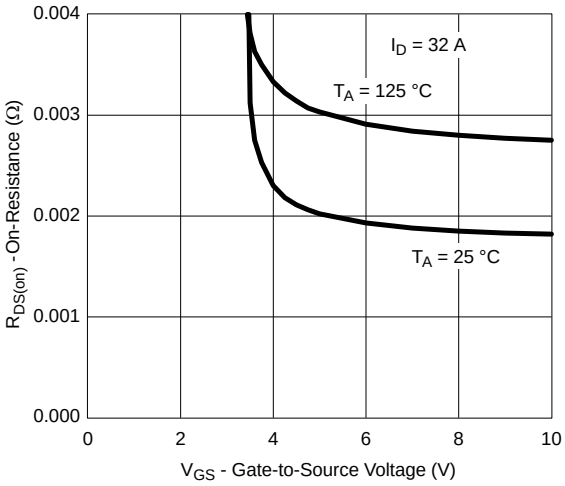
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



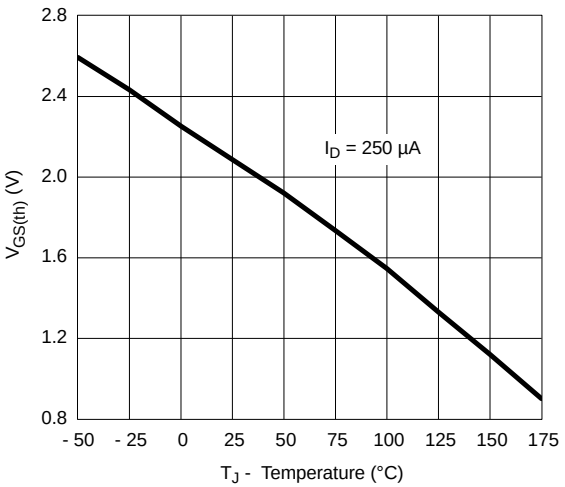
On-Resistance vs. Junction Temperature



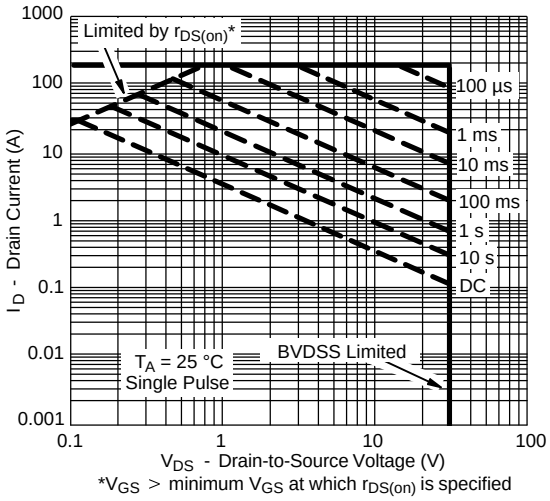
Forward Diode Voltage vs. Temperature



$R_{DS(on)}$ vs. V_{GS} vs. Temperature



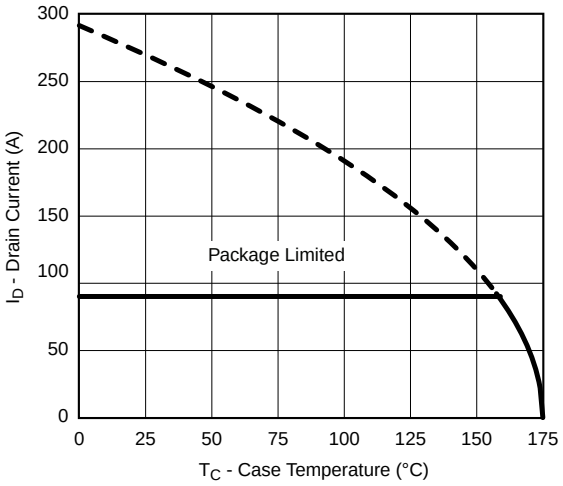
Threshold Voltage



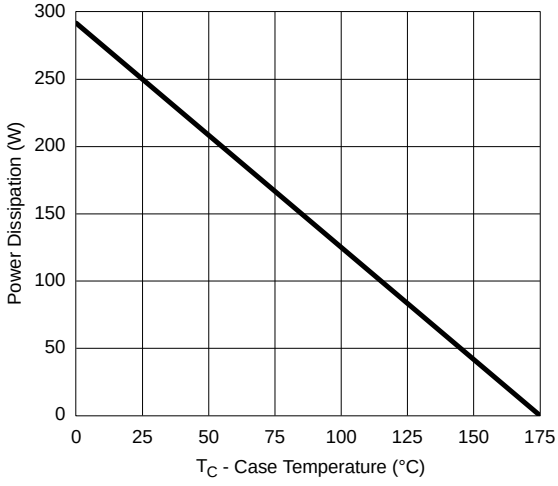
*V_{GS} > minimum V_{GS} at which $r_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

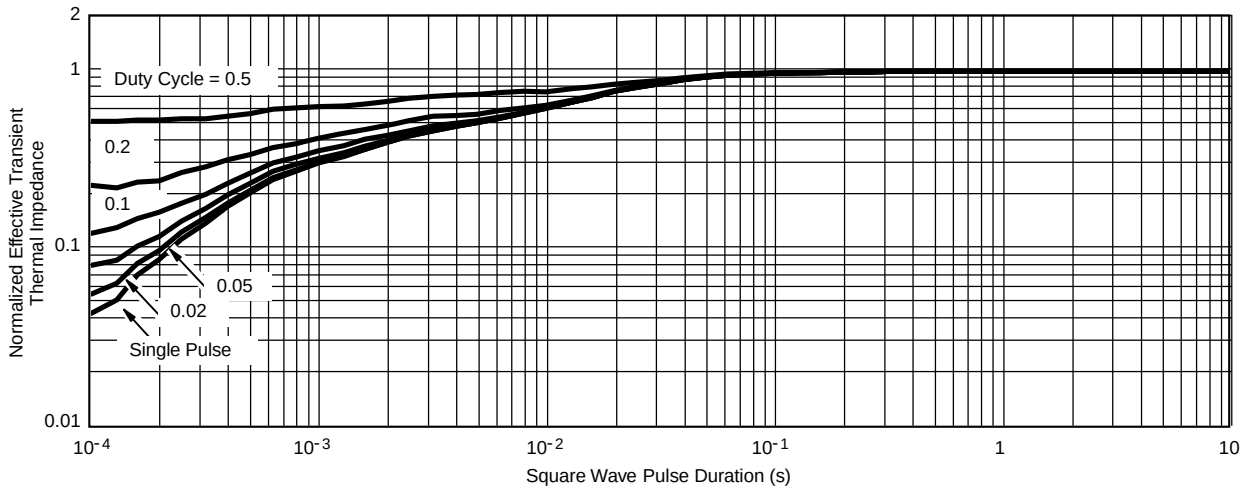


Current Derating*

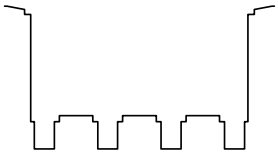


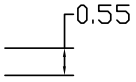
Power Derating

* 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.



Normalized Thermal Transient Impedance, Junction-to-Case

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