

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_b
200V	12mΩ@10V	100A

Feature

- Excellent gate charge x $R_{DS(on)}$ product
- Very low on-resistance $R_{DS(on)}$
- 175 °C operating temperature
- Pb-free lead plating

Application

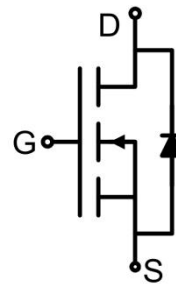
- DC/DC converter
- Ideal for high-frequency switching and synchronous rectification

Package

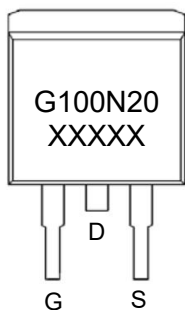


TO-263AB

Circuit Diagram



Marking



Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	200	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	100	A
Continuous Drain Current(T _C =100°C)	I _D	70.7	A
Pulsed Drain Current	I _{DM}	400	A
Power Dissipation	P _D	300	W
Thermal Resistance,Junction-to-Case	R _{θJC}	0.5	°C/W
Single Pulse Avalanche Energy ¹⁾	E _{AS}	1216	mJ
Junction Temperature	T _J	175	°C
Storage Temperature	T _{STG}	-55 ~ +175	°C

Electrical Characteristics (T_C=25 °C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	200			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =200V, V _{GS} = 0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5		4.5	V
Drain-Source on-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =50A		10	12	mΩ
Dynamic Characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} =100V, V _{GS} =0V, f =1MHz		6000		pF
Output Capacitance	C _{oss}			425		
Reverse Transfer Capacitance	C _{rss}			16		
Total Gate Charge	Q _g	V _{DS} =100V, V _{GS} =10V, I _D =50A		87		nC
Gate-Source Charge	Q _{gs}			32		
Gate-Drain Charge	Q _{gd}			17.5		
Turn-on Delay Time	t _{d(on)}	V _{DD} =100V, V _{GS} =10V, I _D =50A, R _{GEN} =4.7Ω		18		nS
Turn-on Rise Time	t _r			26		
Turn-off Delay Time	t _{d(off)}			41		
Turn-off Fall Time	t _f			11		
Source-Drain Diode Characteristics						
Diode Forward Current	I _S				100	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =100A			1.2	V
Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =50A,		140		nS
Reverse Recovery Charge	Q _{rr}	di/dt=100A/μs		600		nC

Notes:

- 1) EAS condition : T_J=25 °C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25Ω.
- 2) Guaranteed by design, not subject to production.

Typical Characteristics

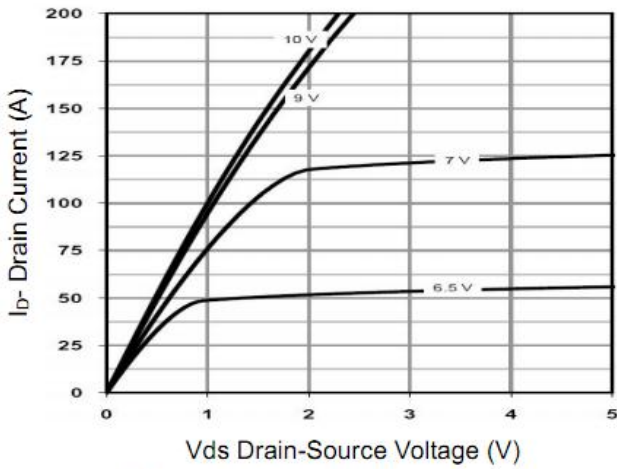


Figure 1 Output Characteristics

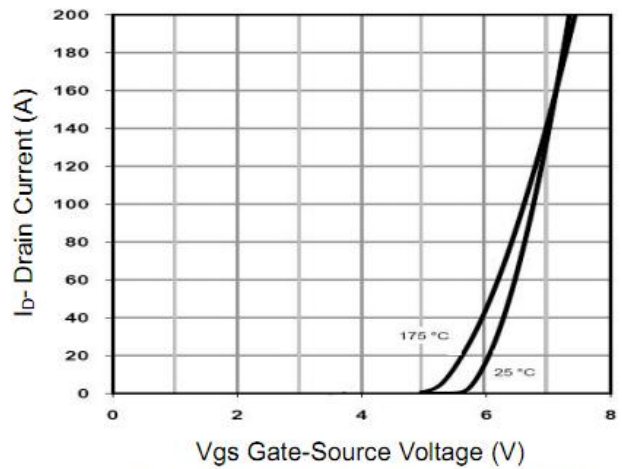


Figure 2 Transfer Characteristics

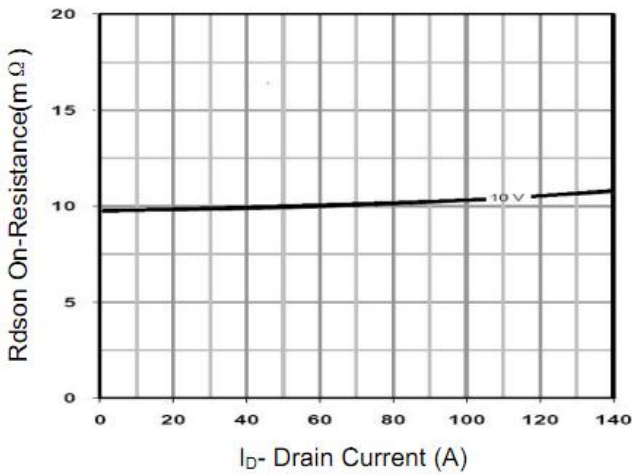


Figure 3 $R_{DS(on)}$ - Drain Current

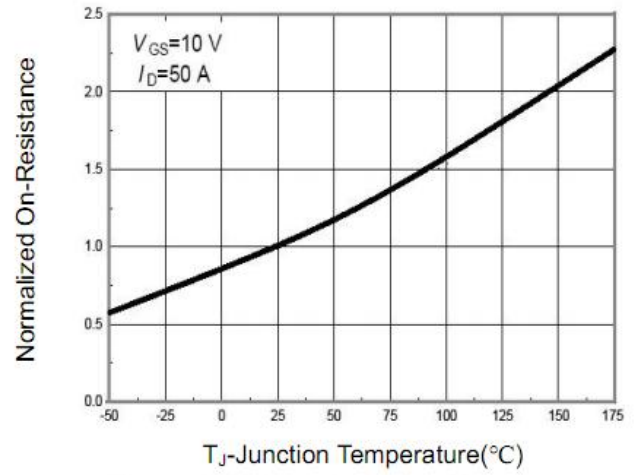


Figure 4 $R_{DS(on)}$ -Junction Temperature

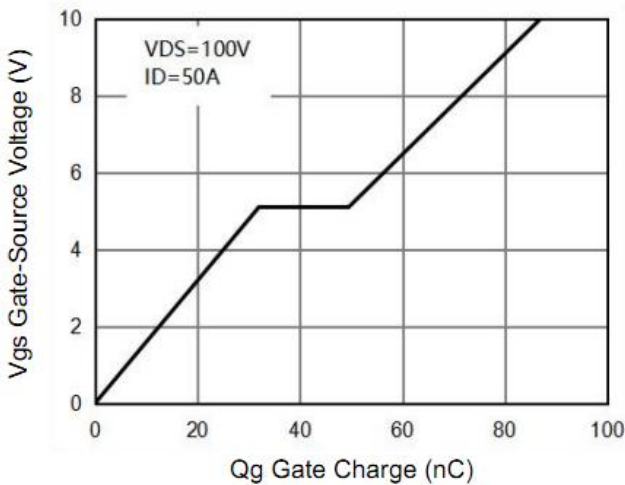


Figure 5 Gate Charge

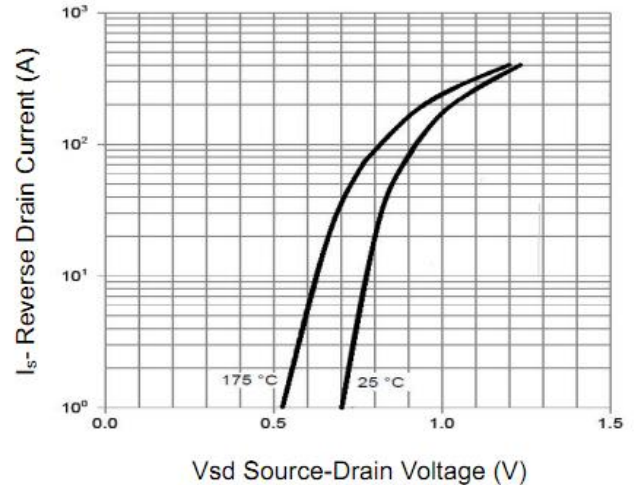


Figure 6 Source- Drain Diode Forward

Typical Characteristics

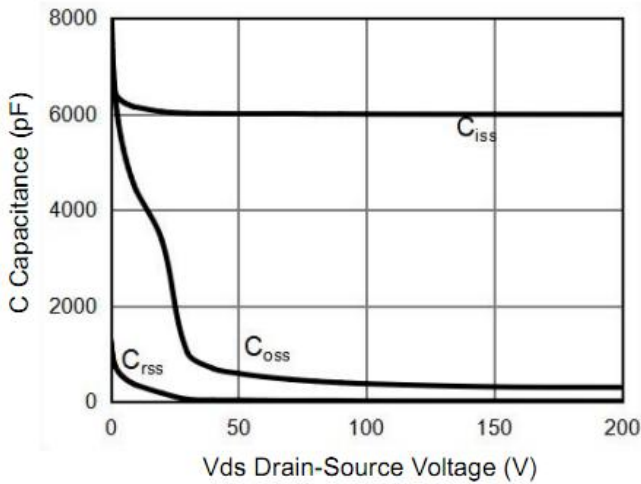


Figure 7 Capacitance vs Vds

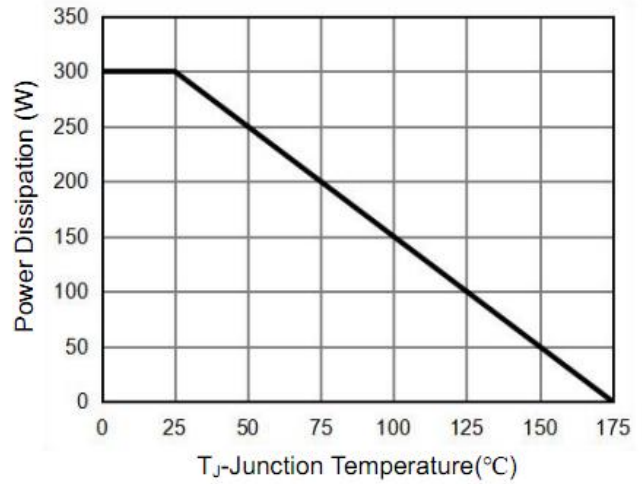


Figure 8 Power De-rating

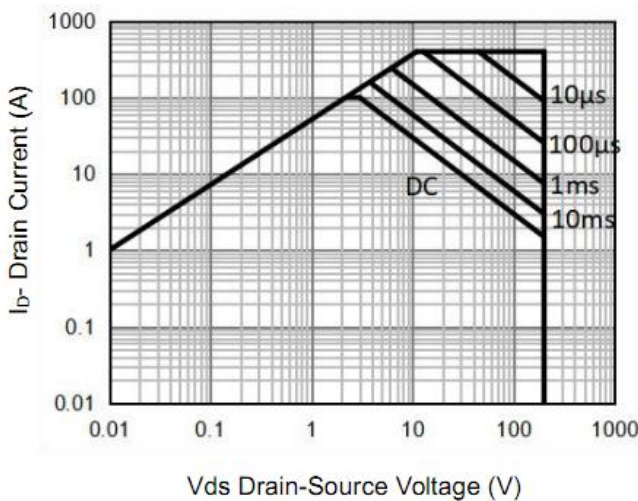


Figure 9 Safe Operation Area

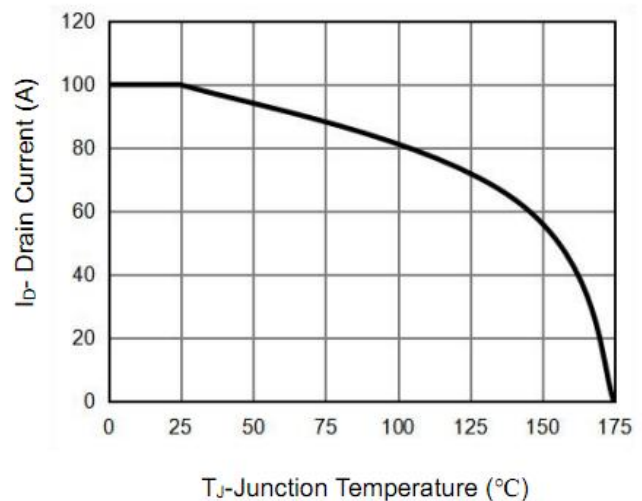


Figure 10 Current De-rating

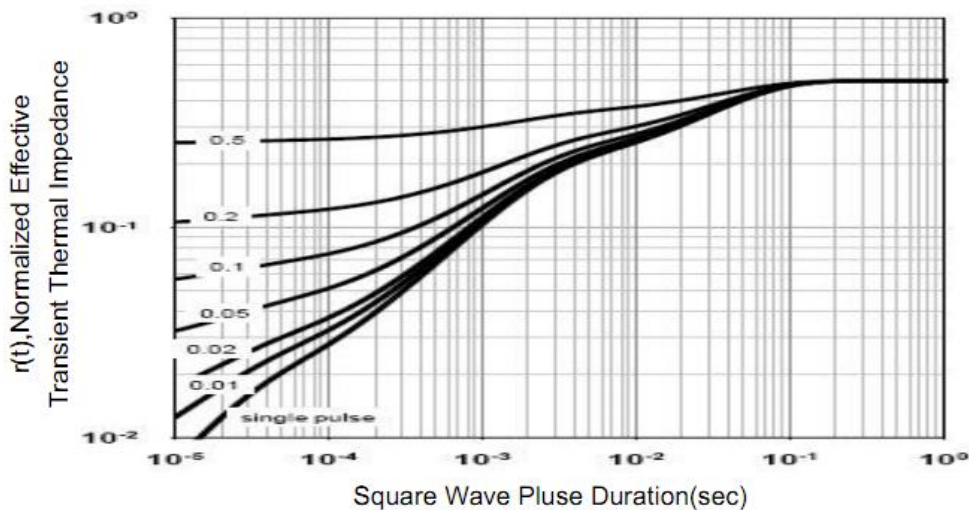
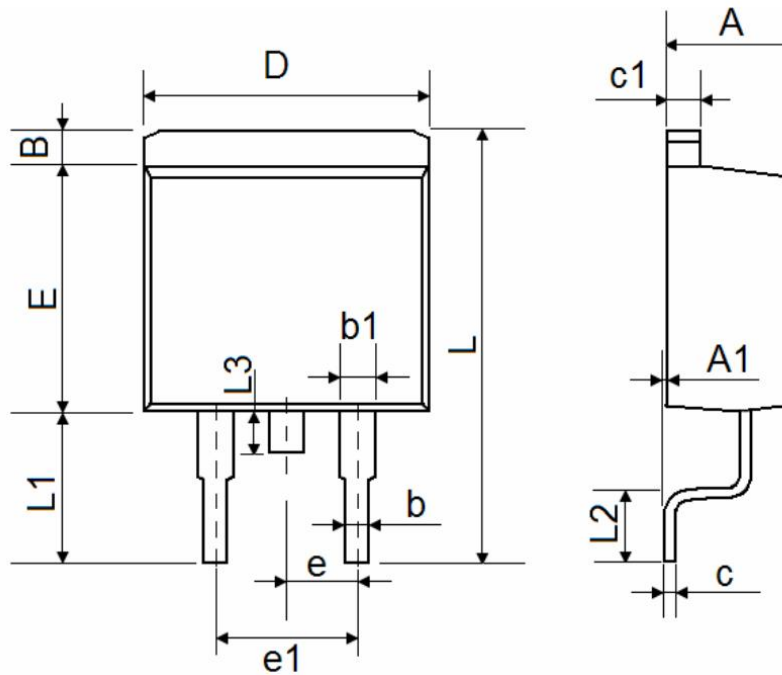


Figure 11 Normalized Maximum Transient Thermal Impedance

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.320	4.670	0.170	0.184
A1	0.000	0.250	0.000	0.010
B	1.150	1.390	0.045	0.055
b	0.710	0.910	0.028	0.036
b1	1.150	1.400	0.045	0.055
c	0.310	0.610	0.012	0.024
c1	1.170	1.400	0.046	0.055
D	10.010	10.310	0.394	0.406
E	8.500	9.400	0.335	0.370
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.610	15.880	0.575	0.625
L1	5.080	5.480	0.200	0.216
L2	1.780	2.790	0.070	0.110
L3	1.270	1.770	0.050	0.070