

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	13mΩ@-10V	-82A
	16mΩ@-4.5V	

Feature

- High density cell design for low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Application

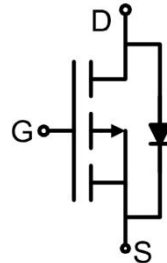
- Load switch

Package

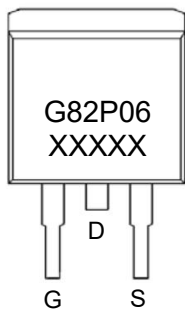


TO-263AB

Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-82	A
Continuous Drain Current (T _c =100°C)	I _D (100°C)	-58	A
Pulsed Drain Current	I _{DM}	-328	A
Power Dissipation	P _D	150	W
Thermal Resistance from Junction to Case	R _{θJC}	1.0	°C/W
Single pulse avalanche energy ⁴⁾	E _{AS}	722	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	-60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -60V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage ²⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.2	-1.8	-2.4	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} = -10V, I _D = -20A		11	13	mΩ
		V _{GS} = -4.5V, I _D = -20A		13	16	
Dynamic characteristics³⁾						
Input Capacitance	C _{iss}	V _{DS} = -30V, V _{GS} = 0V, f = 1MHz		5604		pF
Output Capacitance	C _{oss}			356		
Reverse Transfer Capacitance	C _{rss}			265		
Total Gate Charge	Q _g	V _{DS} = -30V, V _{GS} = -10V, I _D = -20A		62.1		nC
Gate-Source Charge	Q _{gs}			9.3		
Gate-Drain Charge	Q _{gd}			16.8		
Turn-on delay time	t _{d(on)}	V _{DD} = -30V, V _{GS} = -10V R _L = 1.5Ω, R _G = 3Ω		18		nS
Turn-on rise time	t _r			20		
Turn-off delay time	t _{d(off)}			55		
Turn-off fall time	t _f			35		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				-82	A
Diode Forward voltage ²⁾	V _{SD}	V _{GS} = 0V, I _S = -20A			-1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = -20A		49		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ²⁾		71		nC

Notes:

- 1) The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C. The the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design, and the maximum temperature of 175°C may be used if the PCB allows it.
- 2) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 3) Guaranteed by design, not subject to production.
- 4) EAS condition: T_J = 25°C, V_{DD} = -30V, V_G = -10V, L = 0.5mH, R_G = 25Ω.

Typical Characteristics

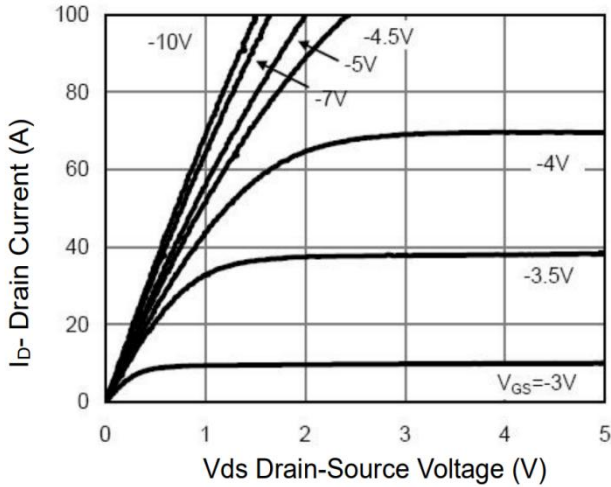


Figure 1 Output Characteristics

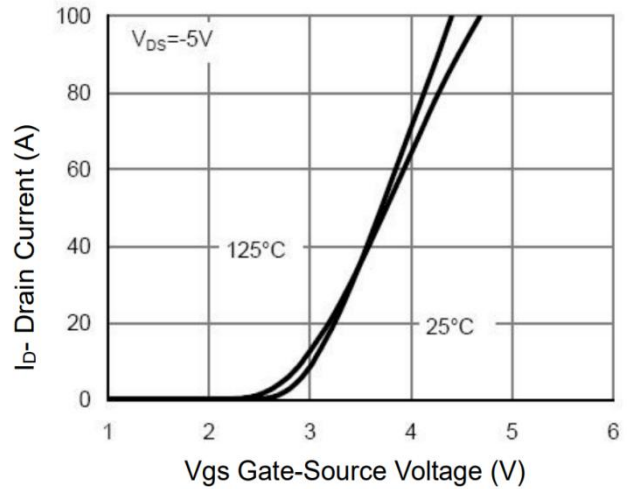


Figure 2 Transfer Characteristics

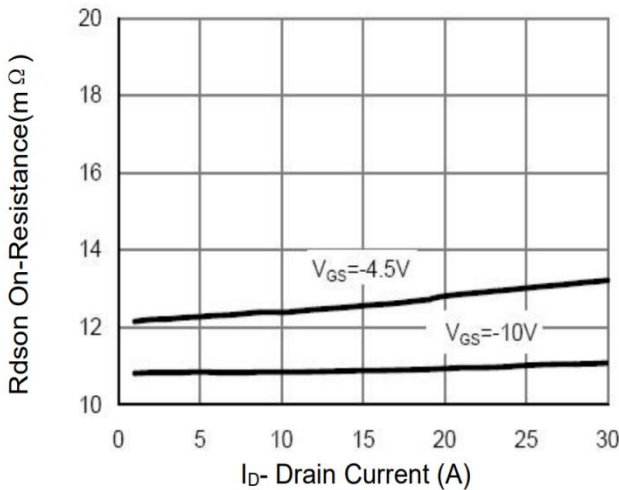


Figure 3 Rdson- Drain Current

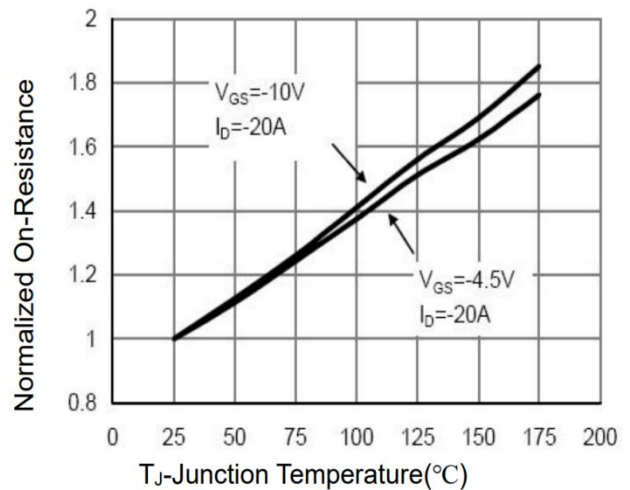


Figure 4 Rdson-Junction Temperature

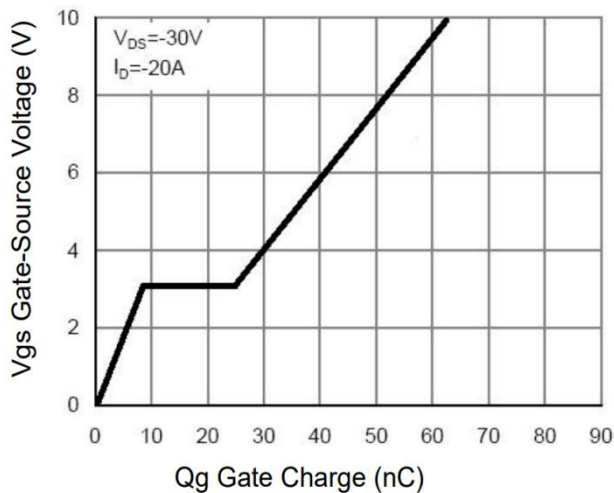


Figure 5 Gate Charge

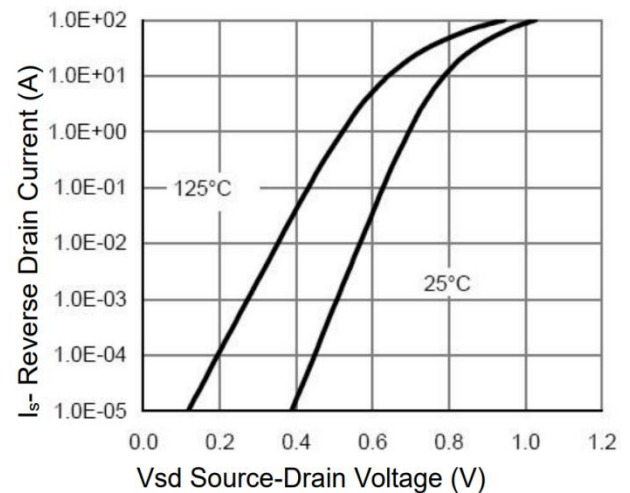


Figure 6 Source- Drain Diode Forward

Typical Characteristics

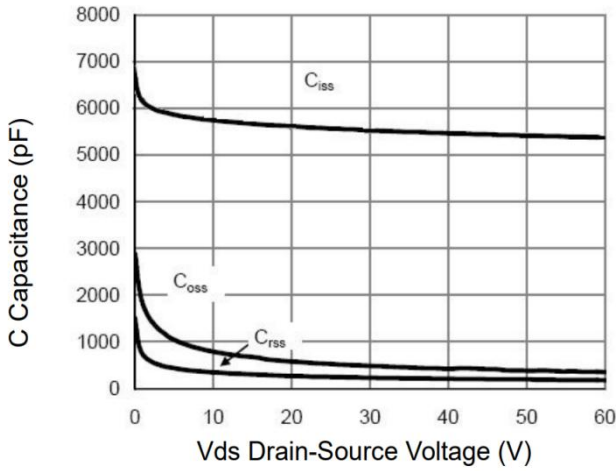


Figure 7 Capacitance vs Vds

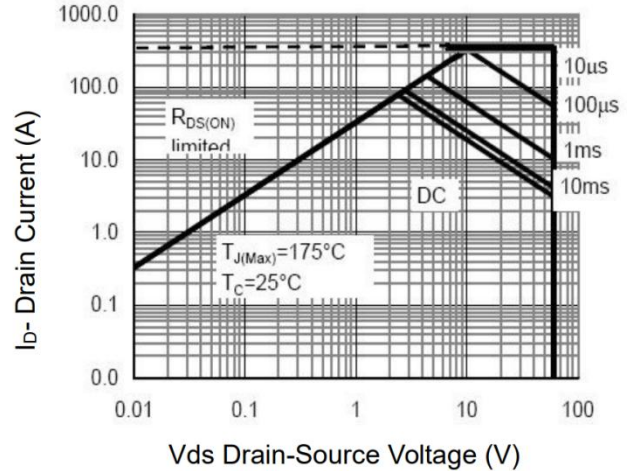


Figure 8 Safe Operation Area

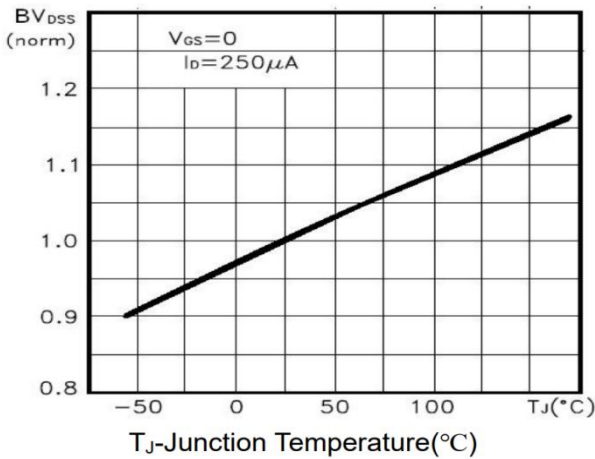


Figure 9 BV_{DSS} vs Junction Temperature

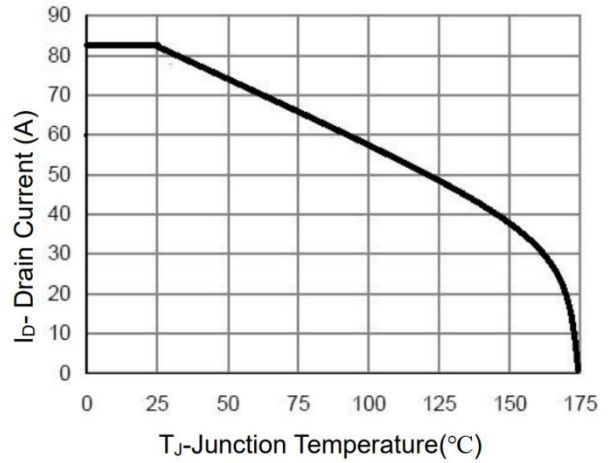


Figure 10 ID Current Derating vs Junction Temperature

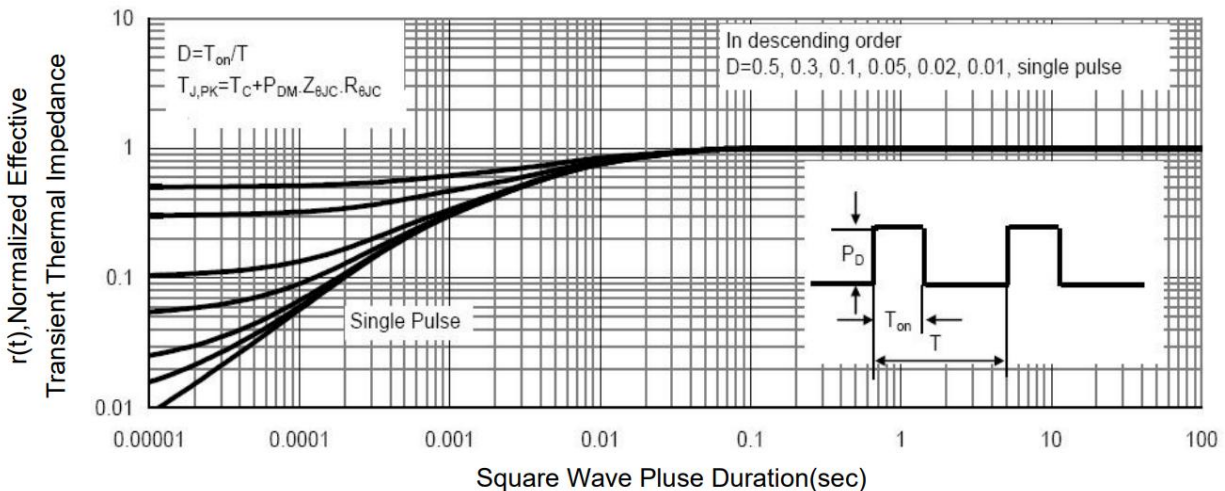
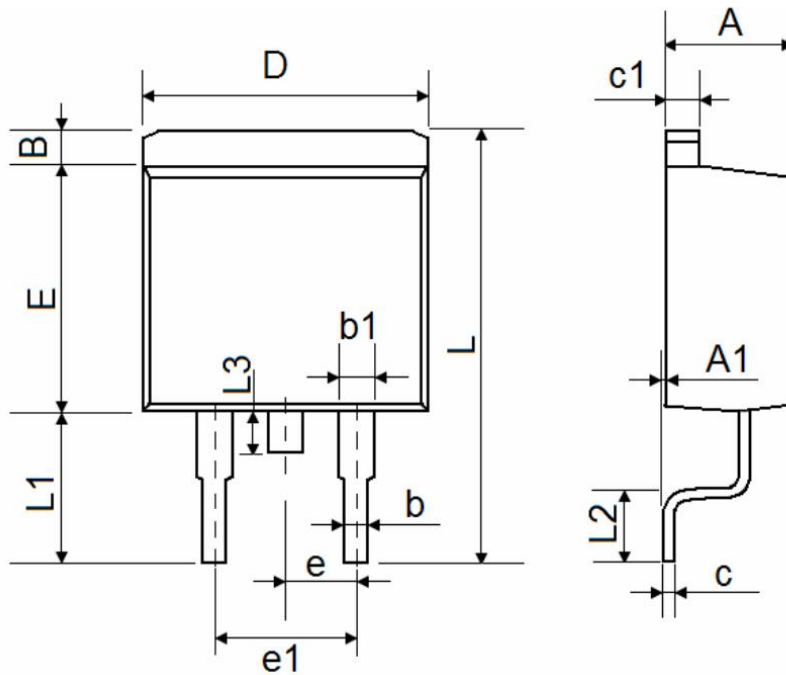


Figure 11 Normalized Maximum Transient Thermal Impedance

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.200	4.670	0.165	0.184
A1	0.000	0.250	0.000	0.010
B	1.360 REF.		0.054 REF.	
b	0.700	0.910	0.028	0.036
b1	1.170	1.750	0.046	0.069
c	0.310	0.600	0.012	0.024
c1	1.150	1.400	0.045	0.055
D	9.780	10.360	0.385	0.408
E	8.500	9.300	0.335	0.366
e	2.540 BSC.		0.100 BSC.	
e1	5.080 BSC.		0.200 BSC.	
L	14.610	15.880	0.575	0.625
L1	4.400	6.000	0.173	0.236
L2	1.780	2.790	0.070	0.110
L3	1.500 REF.		0.059 REF.	