

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	3.2mΩ@10V	170A

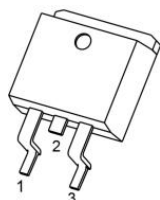
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

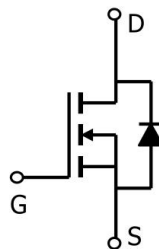
- Power switching application
- DC-DC Converter
- Power Management

Package

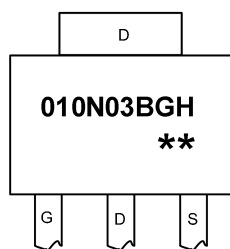


TO-263(G:1 D:2 S:3)

Circuit diagram



Marking



010N03BGH : Product code
** : Week code

**Absolute maximum ratings (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Rating	Unit
Drain source voltage	V_{DS}	100	V
Gate source voltage	V_{GS}	± 20	V
Continuous drain current(Tc=25°C)	I_D	170	A
Pulsed drain current	I_{DM}	680	A
Power dissipation(Tc=25°C)	P_D	220	W
Single pulsed avalanche energy ¹⁾	E_{AS}	180	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.57	°C/W
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Electrical characteristics (Ta=25°C, unless otherwise noted)

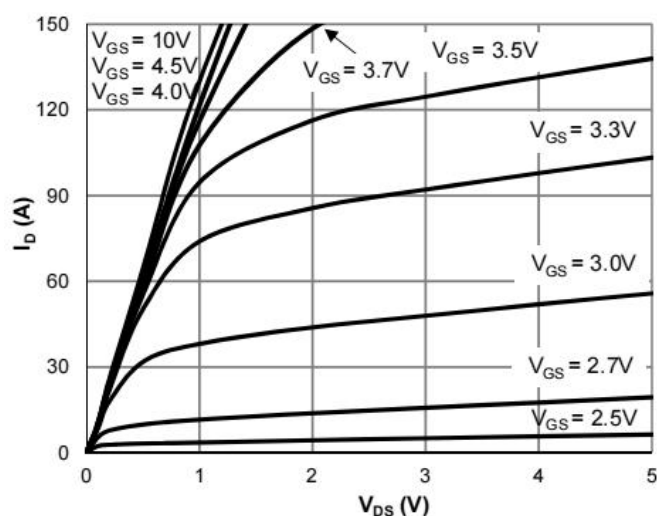
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250μA, V _{GS} = 0V	100	-	-	V
Drain Cut-Off Current	I _{DSS}	V _{DS} = 80V, V _{GS} = 0V	-	-	1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±0.1	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	2.7	4.0	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 30A	-	3.2	4.6	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} = 0V, f = 1.0MHz	-	6950	-	pF
Output Capacitance	C _{oss}		-	1208	-	
Reverse Transfer Capacitance	C _{rss}		-	34	-	
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =50V , V _{GS} =10V , I _D =20A	-	79	-	nC
Gate-Source Charge	Q _{gs}		-	12	-	
Gate-Drain Charge	Q _{gd}		-	25	-	
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DS} = 50V, R _L =2.5Ω , R _G = 6.0Ω	-	12	-	ns
Rise Time	t _r		-	23	-	
Turn-Off Delay Time	t _{d(off)}		-	85	-	
Fall Time	t _f		-	62	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 1A, V _{GS} = 0V	-	-	1.2	V

Note:

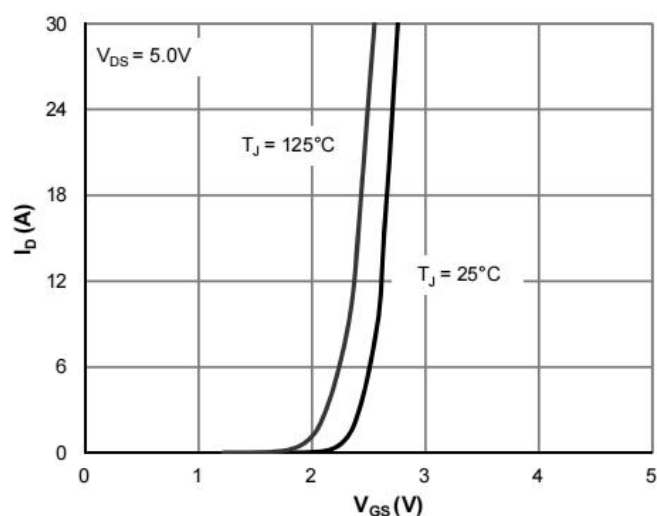
1. E_{AS} is tested at starting $T_j = 25^\circ C$, $V_{DD} = 50V, V_{GS} = 10V, L = 0.1mH, R_g = 25m\Omega$;



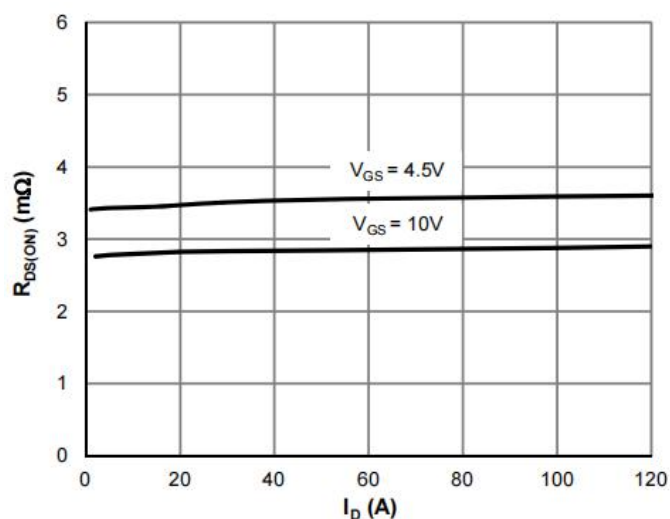
Typical Characteristics



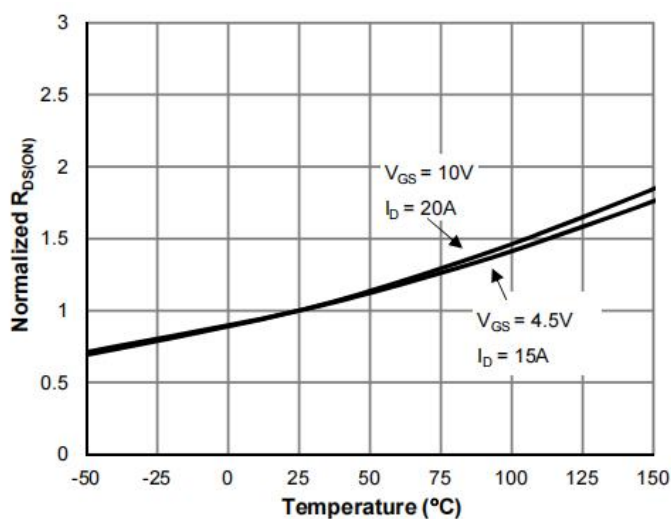
Typical Output Characteristics



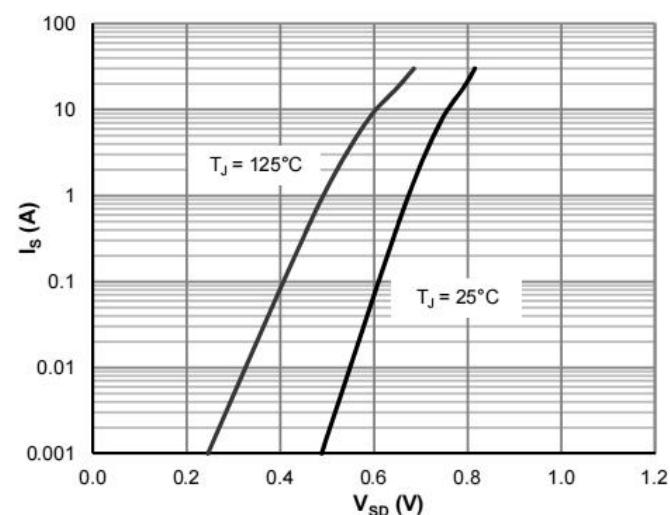
Transfer Characteristics



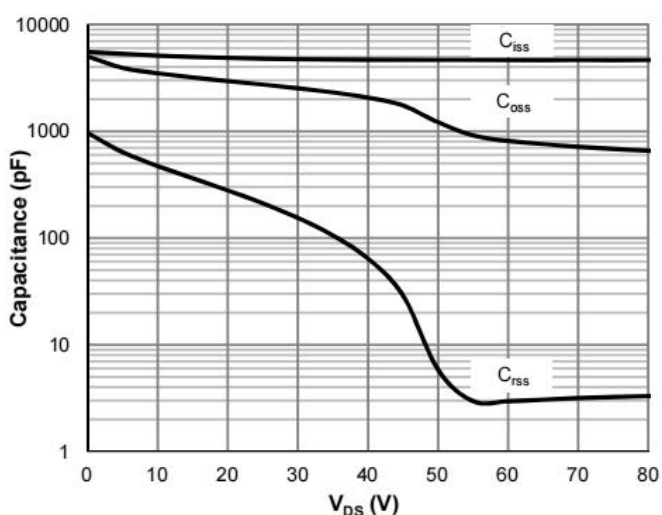
On-Resistance vs. Drain Current



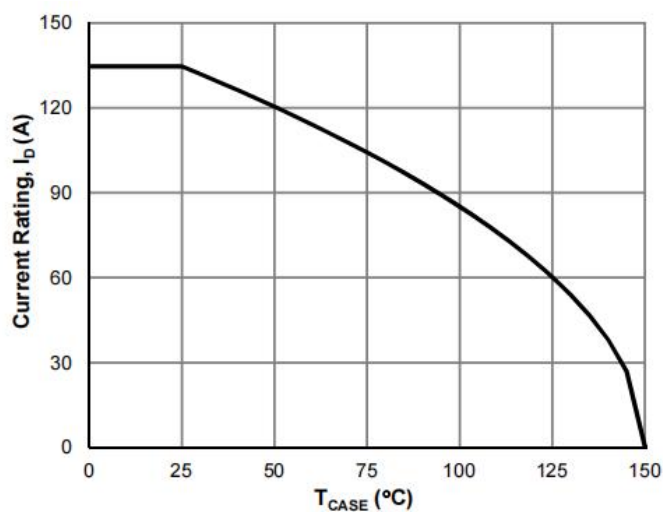
On-Resistance vs. Junction Temperature



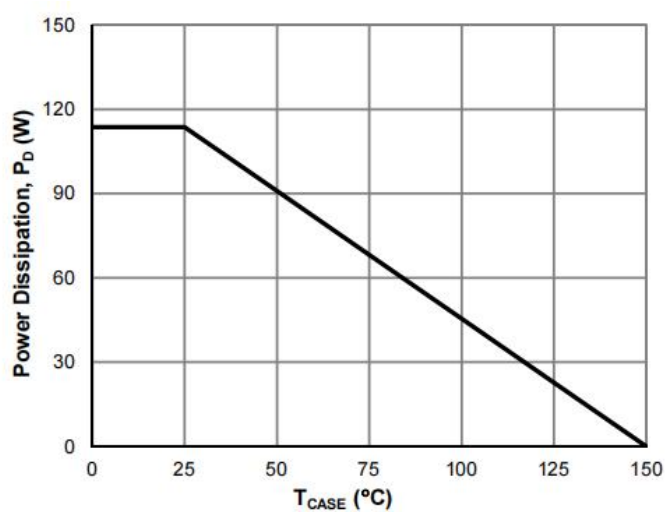
Body-Diode Characteristics



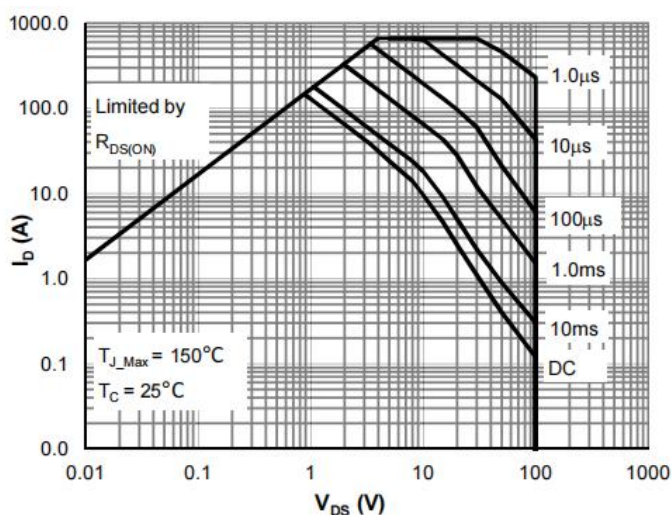
Capacitance Characteristics



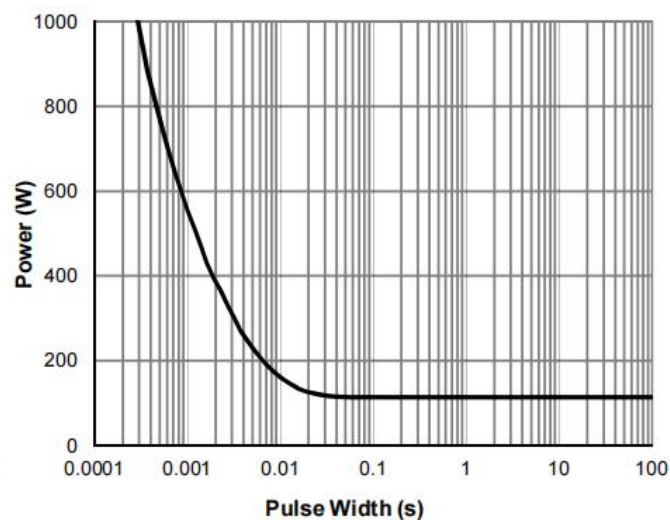
Current De-rating



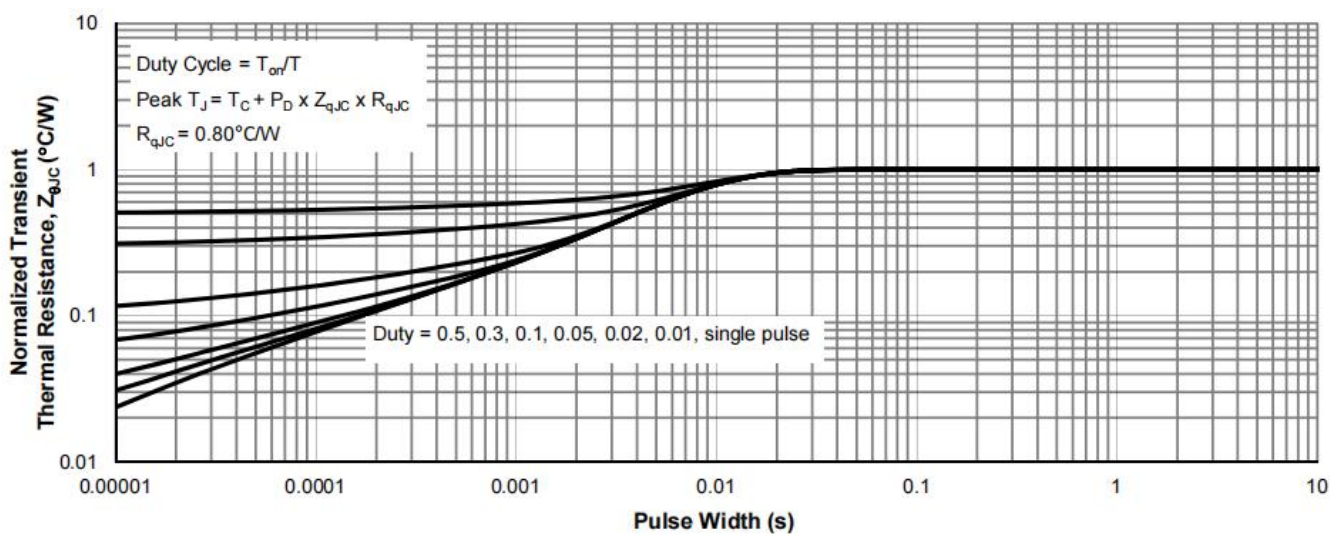
Power De-rating



Maximum Safe Operating Area



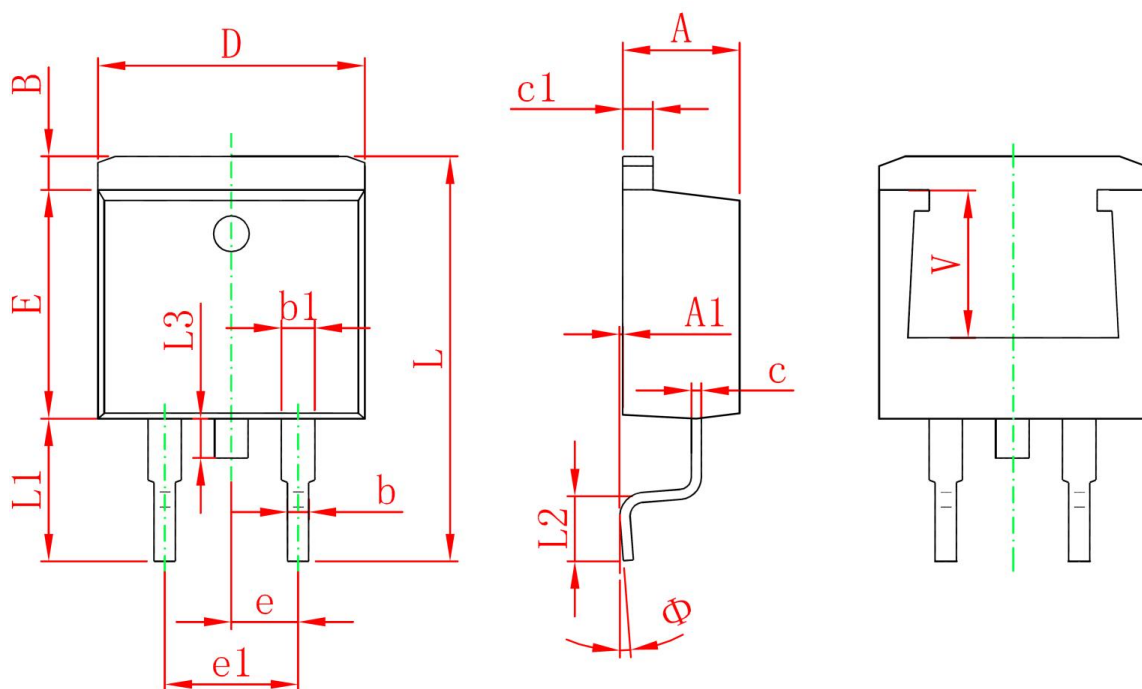
Single Pulse Power Rating, Junction-to-Case



Normalized Maximum Transient Thermal Impedance



TO-263 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	