Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
80V	3.5mΩ@10V	130A

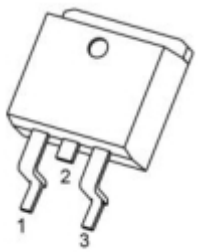
Feature

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

Applications

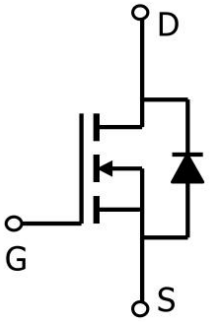
- Power switching application
- DC-DC Converter
- Uninterruptible power supply

Package

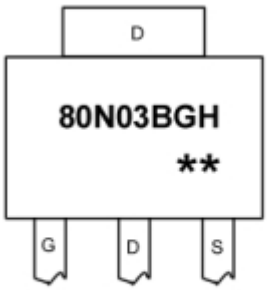


TO-263(1:G 2:D 3:S)

Circuit diagram



Marking



80N03BGH : Product code
** : Week code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	80	V
Gate source voltage	V_{GS}	±20	V
Continuous drain current(Tc=25℃)	I_D	130	A
Pulsed drain current	I_{DM}	520	A
Power dissipation(Tc=25℃)	P_D	160	W
Single pulsed avalanche energy[1)]	E_{AS}	625	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.78	℃/W
Operation and storage temperature	T_J, T_{STG},	-55 to 150	℃

Electrical characteristics

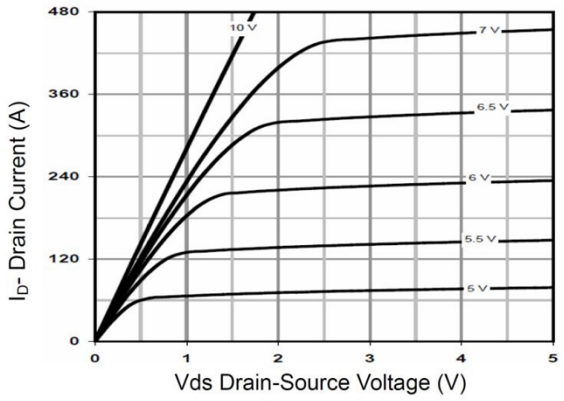
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	80			V
Drain Cut-Off Current	I_{DSS}	V_{DS} =64V, V_{GS} = 0V			1	uA
Gate Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±0.1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		3.5	3.5	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=40V, V_{GS}=0V, f=1MHz		5360		pF
Output capacitance	C_{oss}			850		
Reverse transfer capacitance	C_{rss}			56		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=40V, V_{GS}=10V, I_D =20A		42		pF
Gate-Source Charge	Q_{gs}			15		
Gate-Drain Charge	Q_{gd}			20		
Turn-on Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DS}=40V, R_L =2.0Ω, R_G =3Ω		17		nS
Turn-on Rise Time	T_r			39		
Turn-Off Delay Time	$T_{d(off)}$			64		
Turn-Off Fall Time	t_f			42		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V			1.2	V

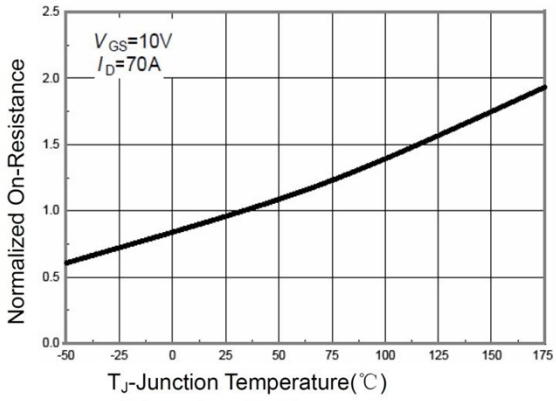
Note：

1. E AS is tested at starting T_j = 25℃, V_{DD} =40V,V_{GS} = 10V,L = 0.5mH, Rg=25 mΩ;

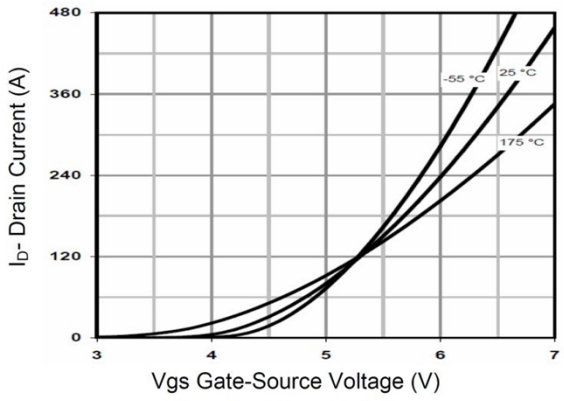
Typical Characteristics



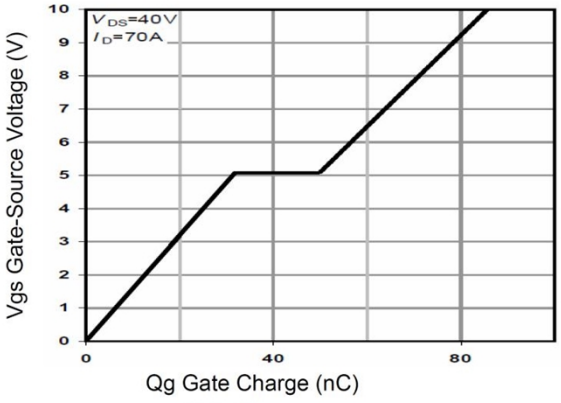
Output Characteristics



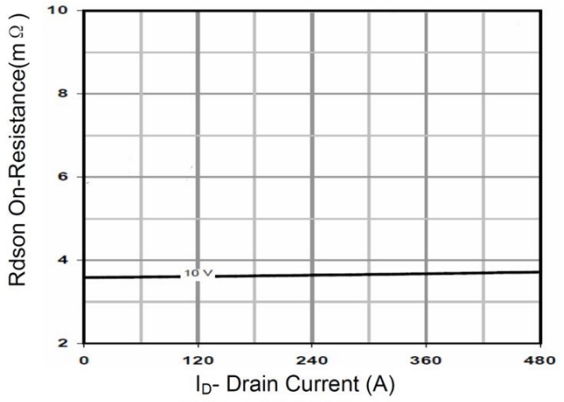
Rdson-JunctionTemperature



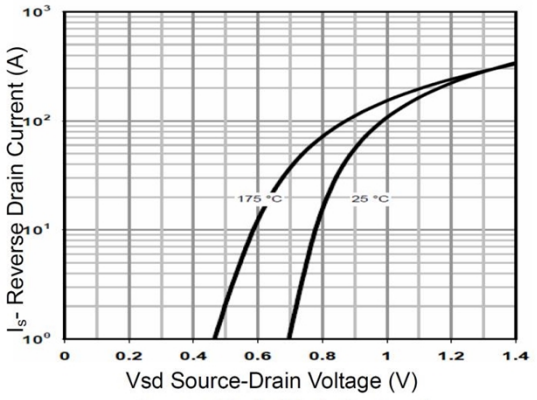
Transfer Characteristics



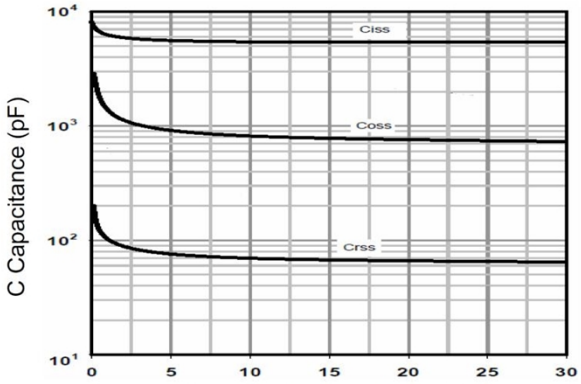
Gate Charge



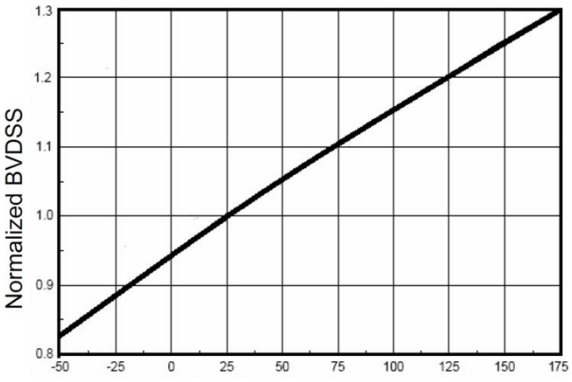
Rdson- Drain Current



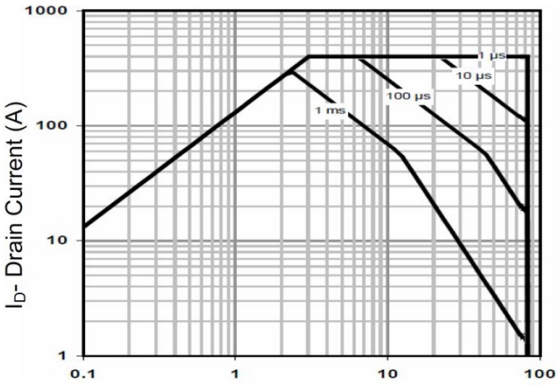
Source- Drain Diode Forward



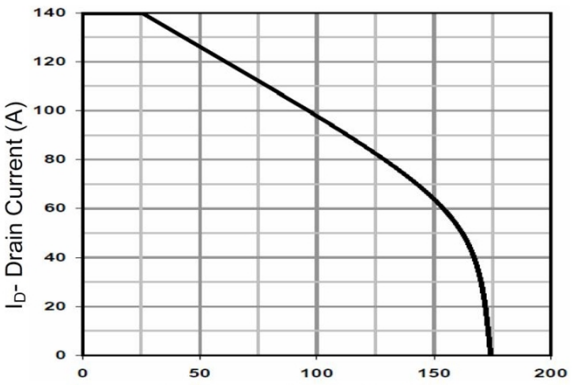
Capacitance vs Vds



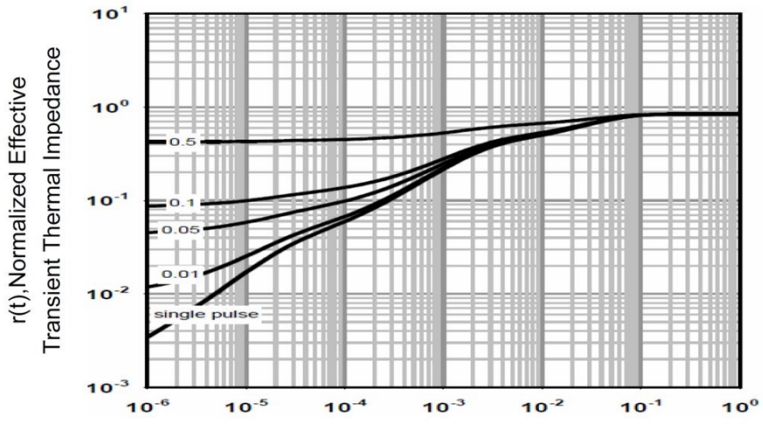
BVDSS vs Junction Temperature



Safe Operation Area

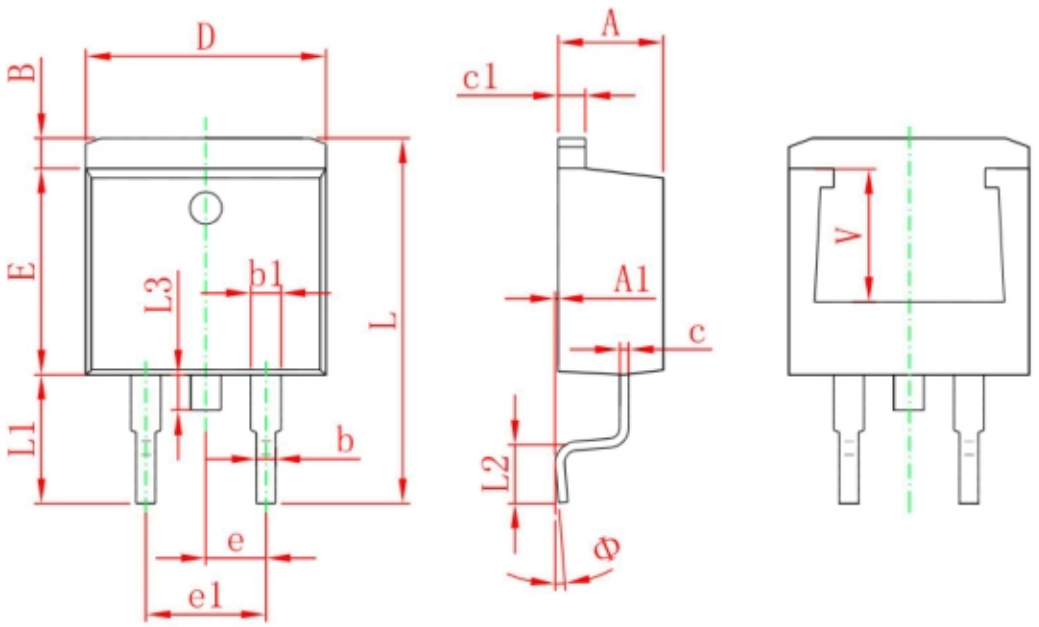


Current De-rating



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.	