Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	1.2mΩ@10V	260A
	1.5mΩ@4.5V	

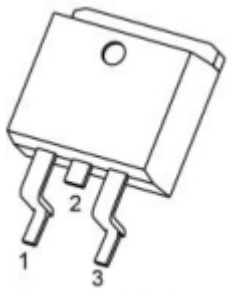
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Application

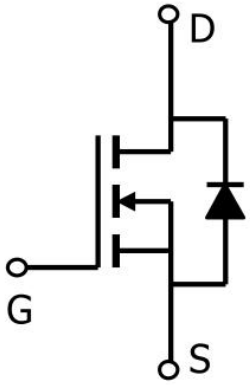
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package



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

Circuit diagram



Marking

40N01G =Device Code
** =Week Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(Tc=25℃)	I_D	260	A
Pulsed Drain Current	I_{DM}	1040	A
Single Pulse Avalanche Energy[1]	E_{AS}	420	mJ
Total Power Dissipation[2](Tc=25℃)	P_D	230	W
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.54	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

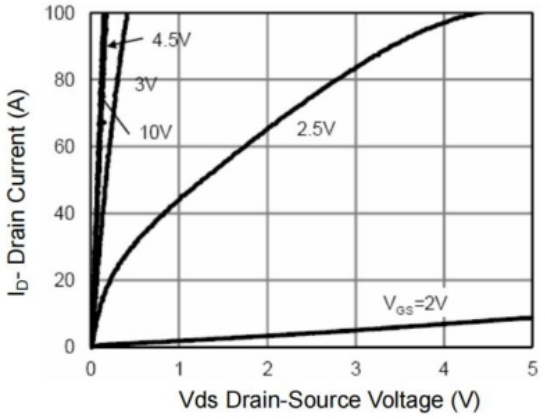
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	40			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =32V,V_{GS} = 0V, T_J=25℃			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		1.2	1.5	mΩ
		V_{GS} =4.5V, I_D =20A		1.5	2	
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{DS}=20V, V_{DS}=10V, I_D =85A		128		pF
Gate-Source Charge	Q_{gs}			19		
Gate-Drain Charge	Q_{gd}			12		
Input Capacitance	C_{iss}	V_{DS}=20V, V_{GS}=0V, f=1MHz		7515		pF
Output Capacitance	C_{oss}			1854		
Reverse Transfer Capacitance	C_{rss}			122		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=20V, V_{GS}=10V, R_G=1.6Ω, I_D =85A		13.5		nS
Rise Time	T_r			8.8		
Turn-Off Delay Time	$T_{d(off)}$			52		
Fall Time	T_f			9.6		
Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V, I_S=1A,T_J=25℃			1.2	V

Note:

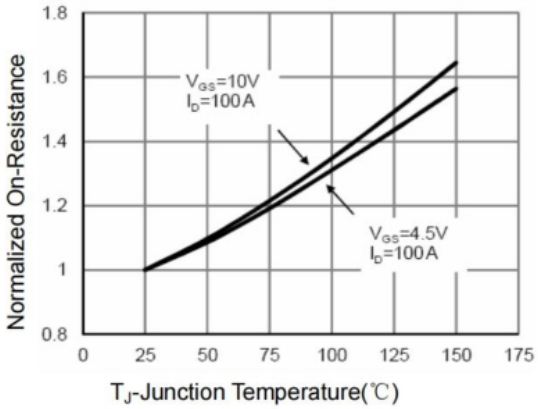
1. The EAS data shows Max. rating . The test condition is V_{DD}=20V,V_{GS}=10V,L=0.5mH,R_G=25Ω

2. The power dissipation is limited by 150℃ junction temperature

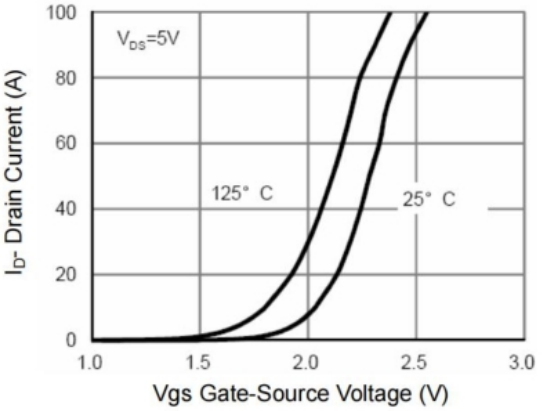
Typical Characteristics



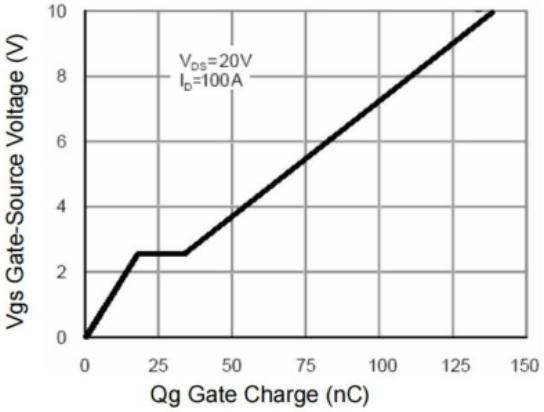
Output Characteristics



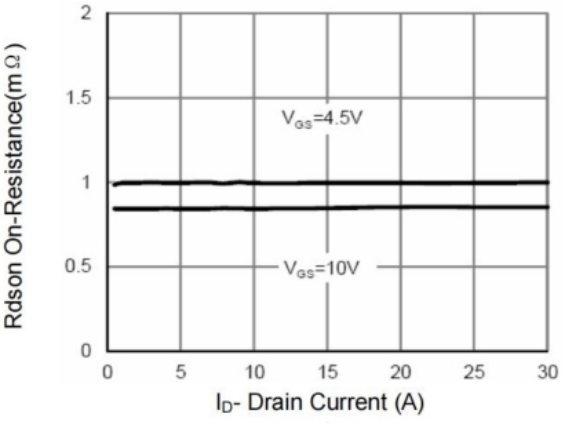
Rdson-Junction Temperature



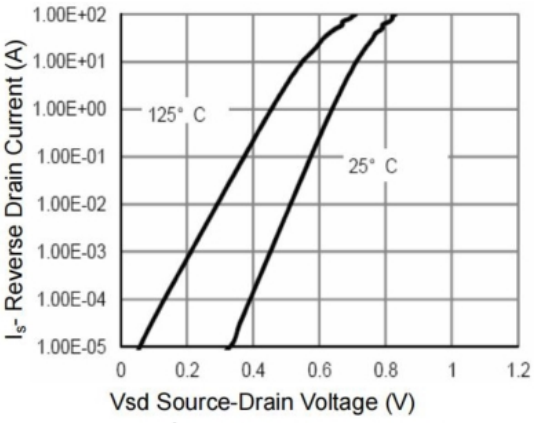
Transfer Characteristics



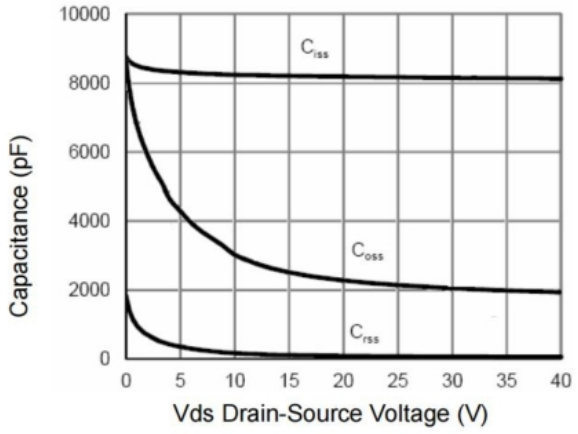
Gate Charge



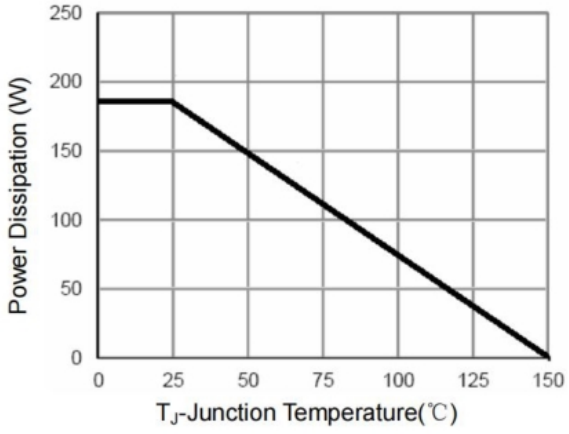
Rdson- Drain Current



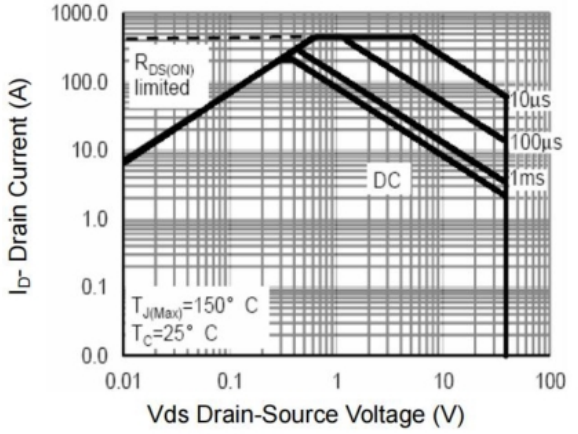
Source- Drain Diode Forward



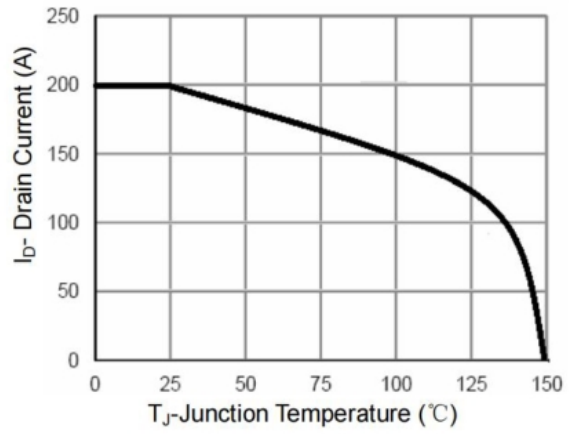
Capacitance vs Vds



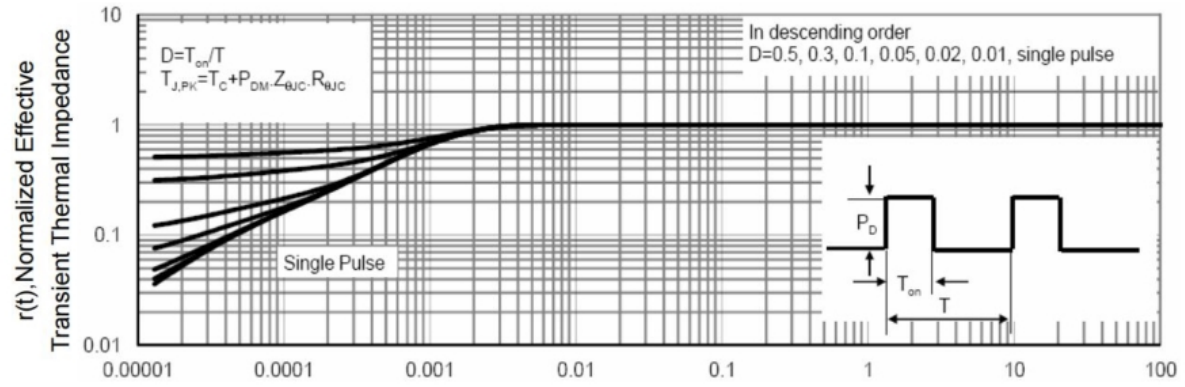
Power De-rating



Safe Operation Area

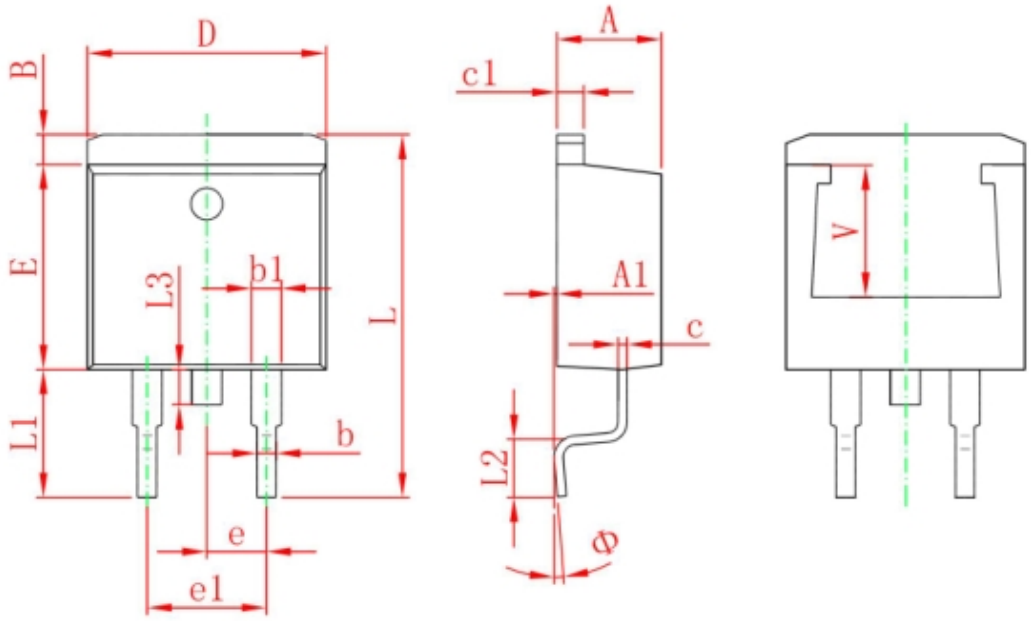


Current De-rating



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.	