Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	2mΩ@10V	235A

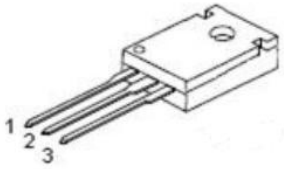
Feature

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

Applications

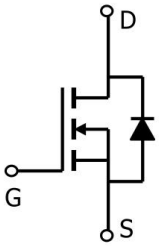
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

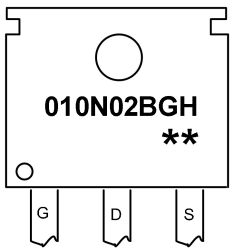


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



010N02BGH **=Device Code**
****** **=Week Code**

Absolute maximum ratings (Ta=25℃,unless otherwise noted)

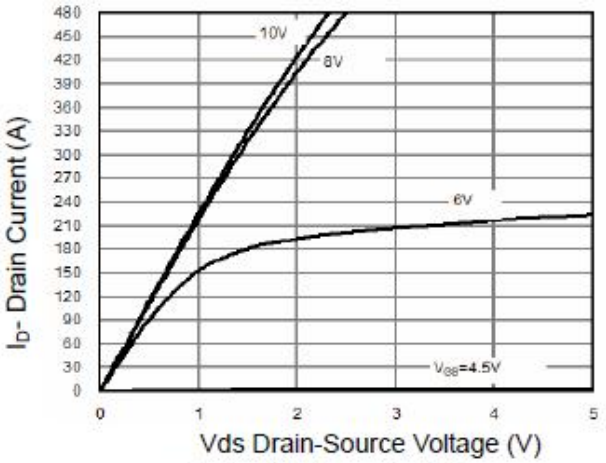
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(Tc=25℃)	I_D	235	A
Pulsed Drain Current	I_{DM}	940	A
Single Pulse Avalanche Energy[1]	E_{AS}	1458	mJ
Total Power Dissipation[2](Tc=25℃)	P_D	400	W
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.31	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Electrical characteristics (Ta=25℃, unless otherwise noted)

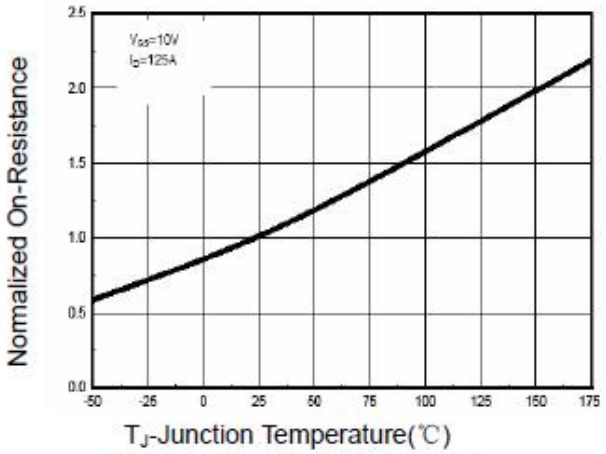
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	100	---	---	V
Drain-Source Leakage Current	I_{DSS}	VDS=80V , VGS=0V , TJ=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	2.7	3.2	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=10V , ID=125A	---	2	2.6	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=50V , VGS=0V , f=1MHz	---	11531	---	pF
Output Capacitance	C_{oss}		---	1489	---	
Reverse Transfer Capacitance	C_{rss}		---	72	---	
Switching Characteristics						
Total Gate Charge (4.5V)	Q_g	VDS=50V , VGS=10V , ID=125A	---	158	---	nC
Gate-Source Charge	Q_{gs}		---	51	---	
Gate-Drain Charge	Q_{gd}		---	27	---	
Turn-On Delay Time	$T_{d(on)}$	VDD=50V, VGS=10V , RG=1.6Ω, ID=125A	---	25	---	ns
Rise Time	T_r		---	75	---	
Turn-Off Delay Time	$T_{d(off)}$		---	89	---	
Fall Time	T_f		---	29	---	
Diode Characteristics						
Diode Forward Voltage2	V_{SD}	VGS=0V , IS=1A , TJ=25℃	---	---	1.2	V
Reverse recover time	Trr	I_{SD}=180A, di/dt=100A/us, Vdd=80, Tj=25℃	---	86	---	ns
Reverse recovery charge	Qrr		---	201	---	nC
Reverse recovery current	I_{RRM}		---	5	---	A

Note :
1. The EAS data shows Max. rating . The test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω
2. The power dissipation is limited by 150℃ junction temperature

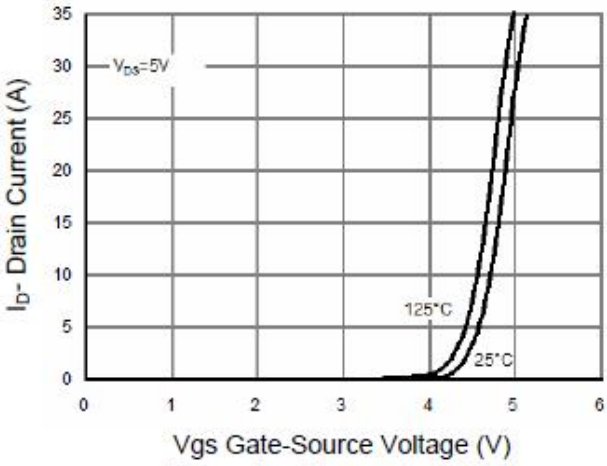
Typical Characteristics



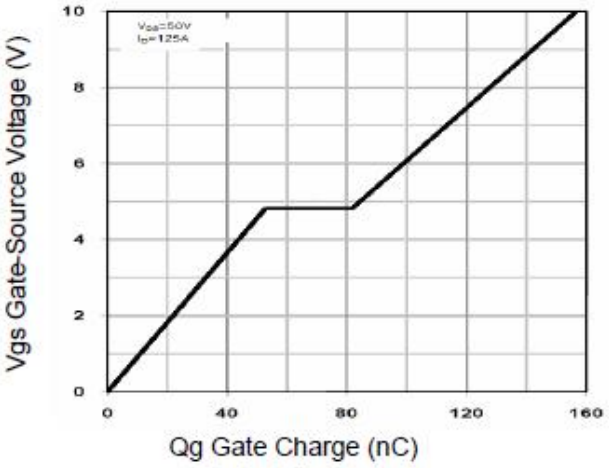
Output Characteristics



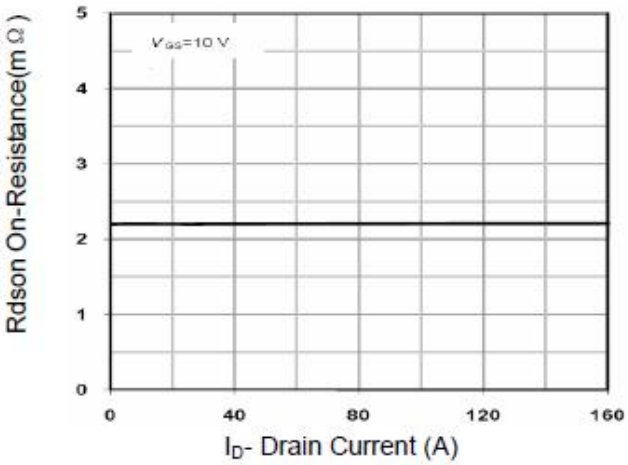
Rdson-Junction Temperature



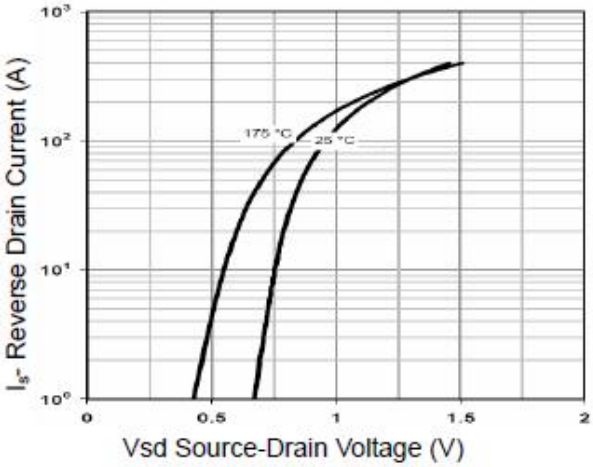
Transfer Characteristics



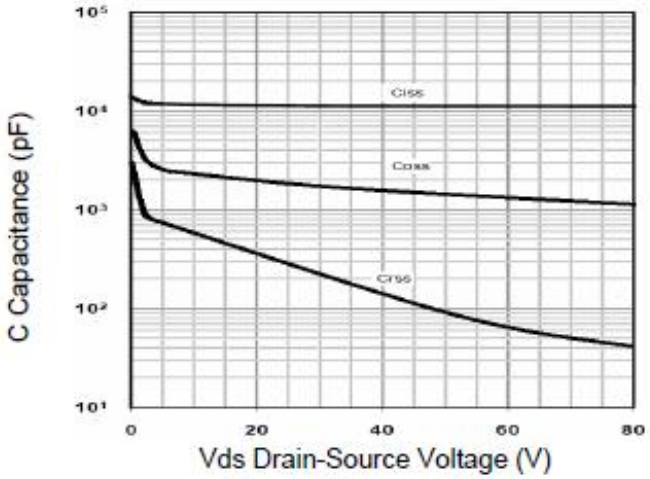
Gate Charge



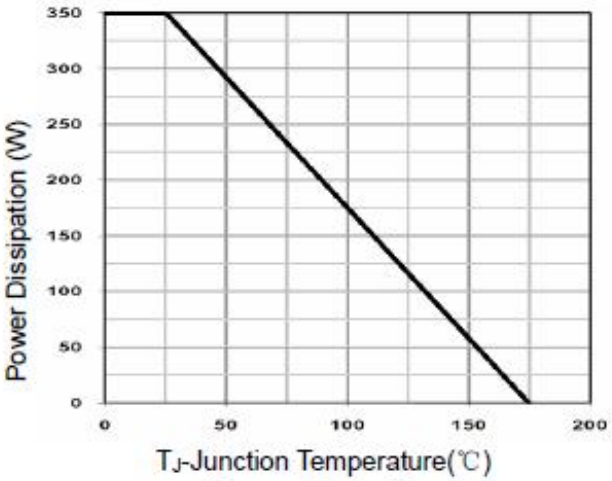
Rdson- Drain Current



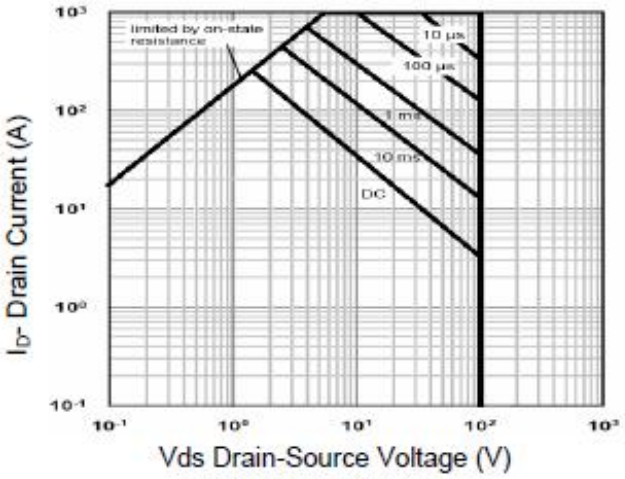
Source- Drain Diode Forward



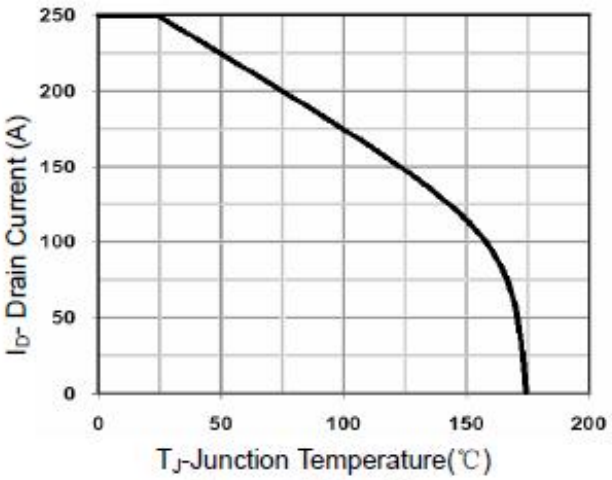
Capacitance vs Vds



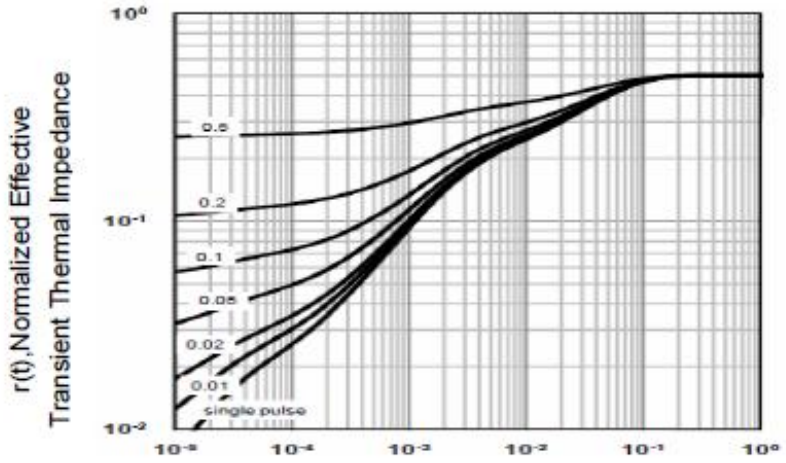
Power De-rating



Safe Operation Area

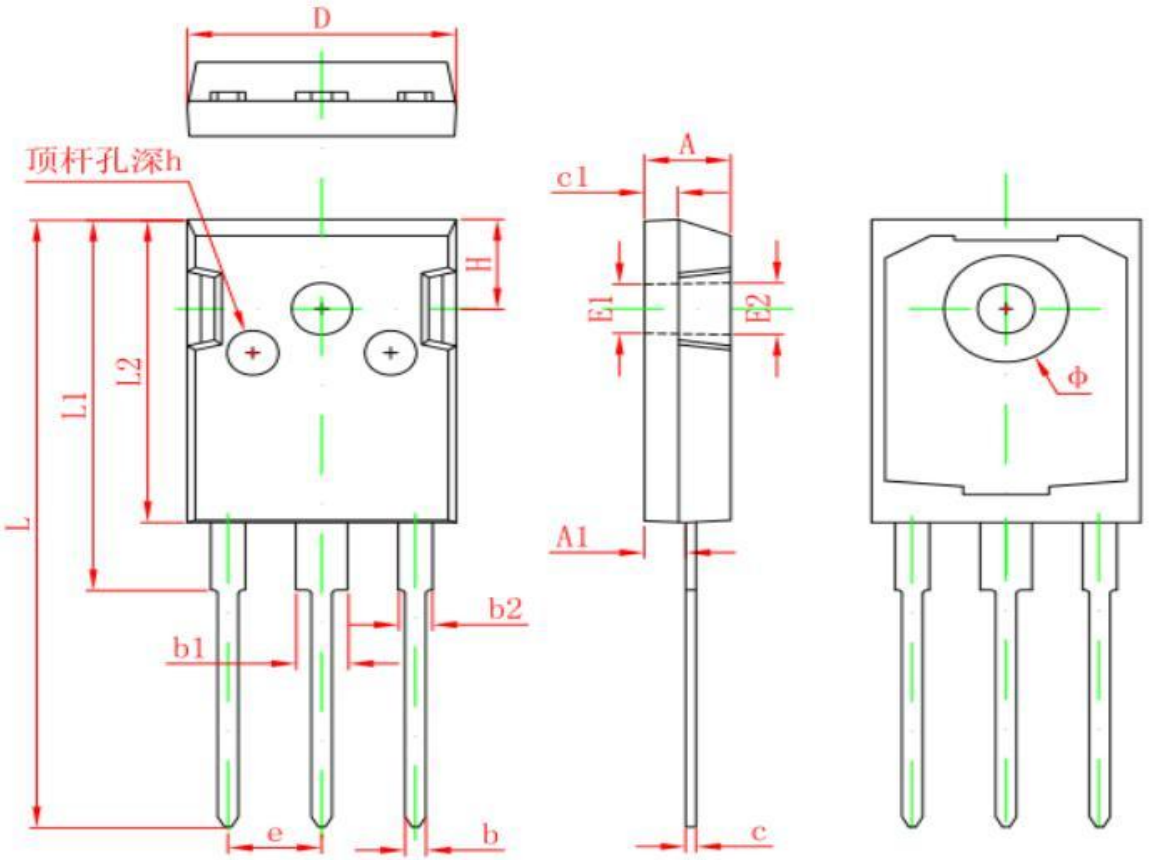


Current De-rating



Normalized Maximum Transient Thermal Impedance

TO-247 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF.		0.138 REF.	
E2	3.600 REF.		0.142 REF.	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
Φ	7.100	7.300	0.280	0.287
e	5.450 TYP.		0.215 TYP.	
H	5.980 REF.		0.235 REF.	
h	0.000	0.300	0.000	0.012