

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	4.9mΩ@10V	125A
	6.4mΩ@4.5V	

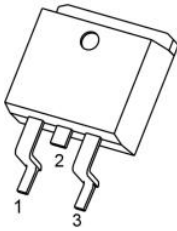
Feature

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

Applications

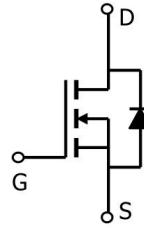
- Power switching application
- PWM Application
- DC-DC Converter

Package



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

Circuit diagram



Marking



010N04BG =Device Code
****** =Week Code

Absolute maximum ratings (Ta=25°C 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°C)	I _D	125	A
Pulsed Drain Current ²	I _{DM}	500	A
Single Pulse Avalanche Energy ³	E _{AS}	100	mJ
Avalanche Current	I _{AS}	20	A
Total Power Dissipation ⁴ (Tc=25°C)	P _D	185	W
Thermal Resistance Junction-Case ¹	R _{θJC}	0.67	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

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

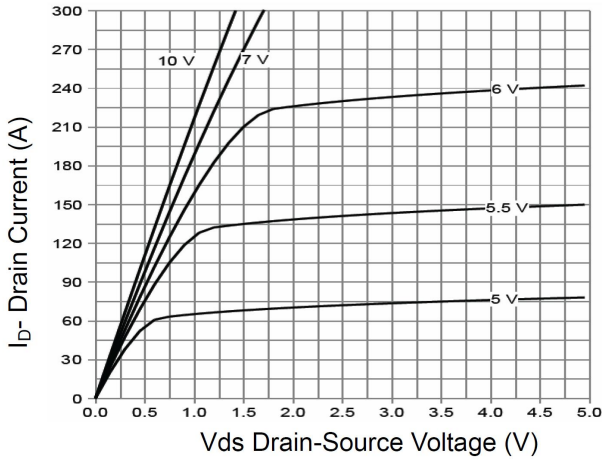
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	100	---	---	V
Drain-Source Leakage Current	I _{DSS}	VDS=80V , VGS=0V , TJ=25°C	---	---	1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VGS=VDS , ID =250uA	1.0	2.0	3.0	V
Static Drain-Source On-Resistance ²	R _{DS(on)}	VGS=10V , ID=30A	---	4.9	6.1	mΩ
		VGS=4.5V , ID=20A	---	6.4	8.5	
Dynamic Characteristics						
Input Capacitance	C _{iss}	VDS=50V , VGS=0V , f=1MHz	---	4850	---	pF
Output Capacitance	C _{oss}		---	480	---	
Reverse Transfer Capacitance	C _{rss}		---	34	---	
Switching Characteristics						
Total Gate Charge (4.5V)	Q _g	VDS=50V , VGS=10V , ID=50A	---	97	---	nC
Gate-Source Charge	Q _{gs}		---	27	---	
Gate-Drain Charge	Q _{gd}		---	30	---	
Turn-On Delay Time	T _{d(on)}	VDD=50V , VGS=10V , RG=3Ω , ID=50A	---	24	---	ns
Rise Time	T _r		---	13	---	
Turn-Off Delay Time	T _{d(off)}		---	47	---	
Fall Time	T _f		---	11	---	
Source-Drain Diode Characteristics						
Diode Forward Voltage ²	V _{SD}	VGS=0V , IS=1A , TJ=25°C	---	---	1.2	V

Note :

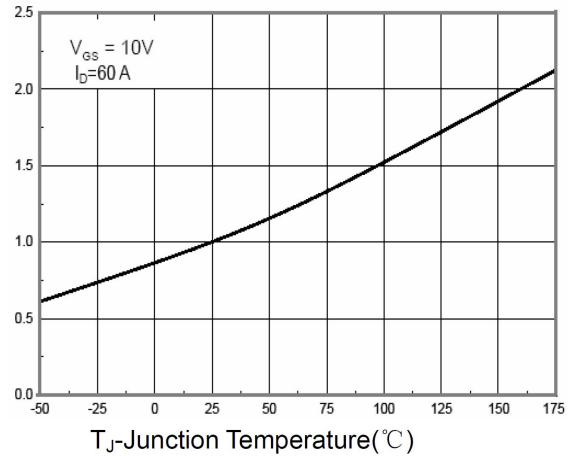
1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≅ 300us , duty cycle ≅ 2%
3. The EAS data shows Max. rating . The test condition is VDD=50V,VGS=10V,L=0.5mH,IAS=20A
4. The power dissipation is limited by 150°C junction temperature



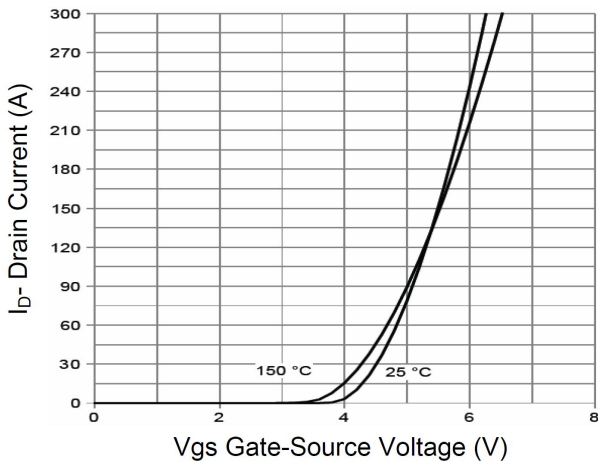
Typical Characteristics



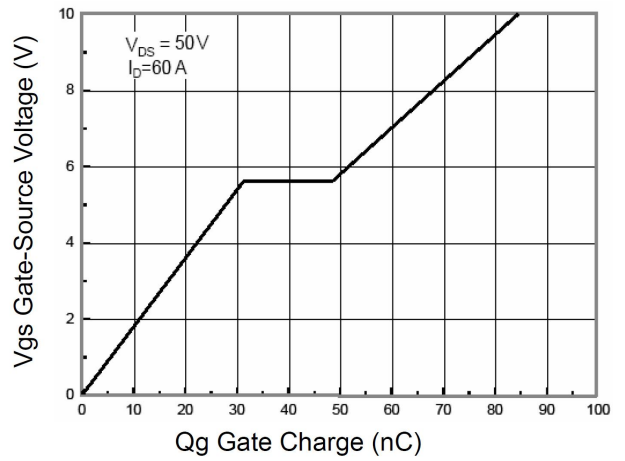
Output Characteristics



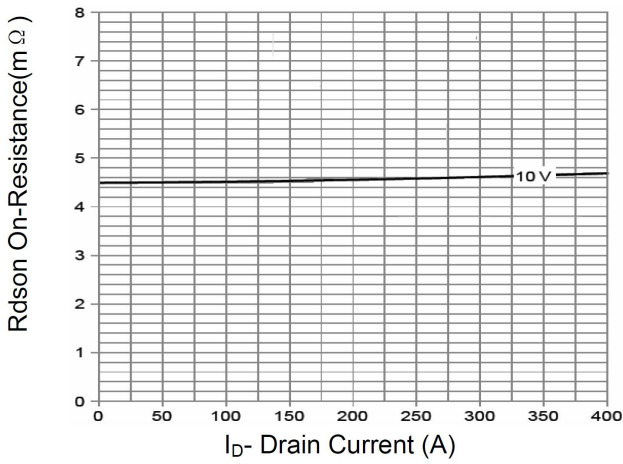
$R_{ds(on)}$ -Junction Temperature



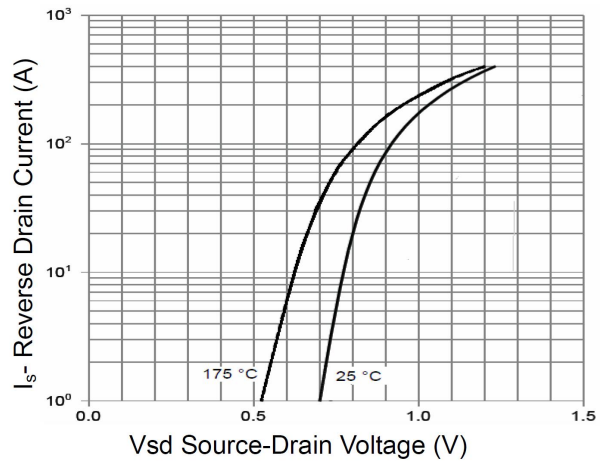
Transfer Characteristics



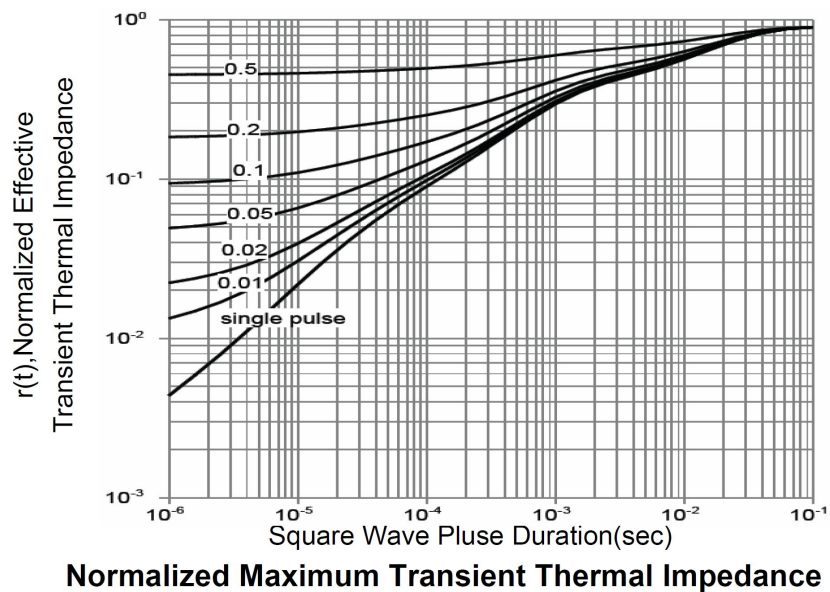
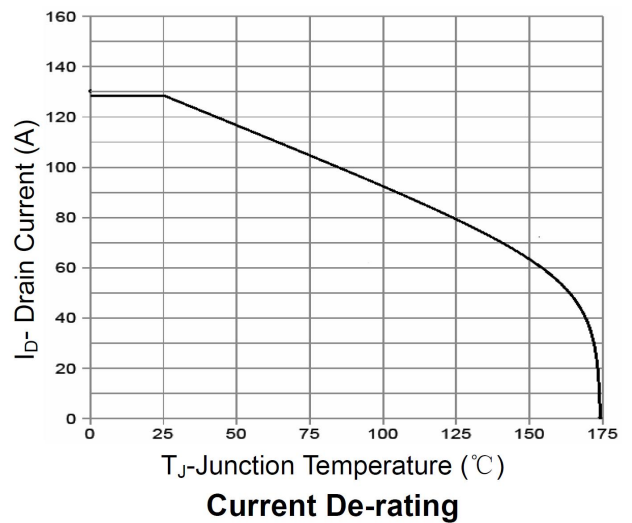
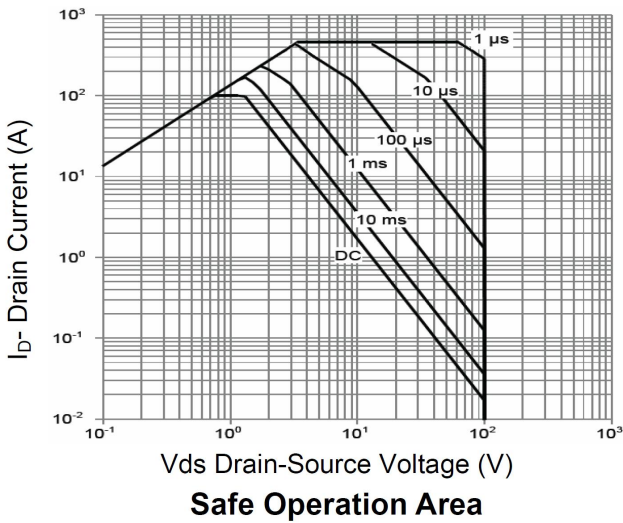
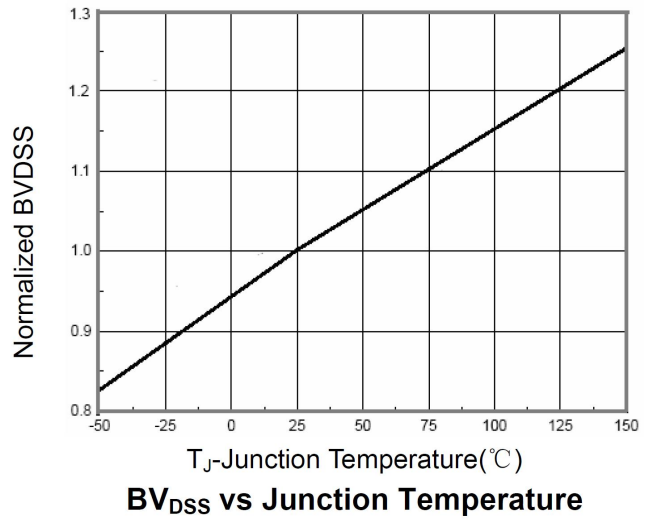
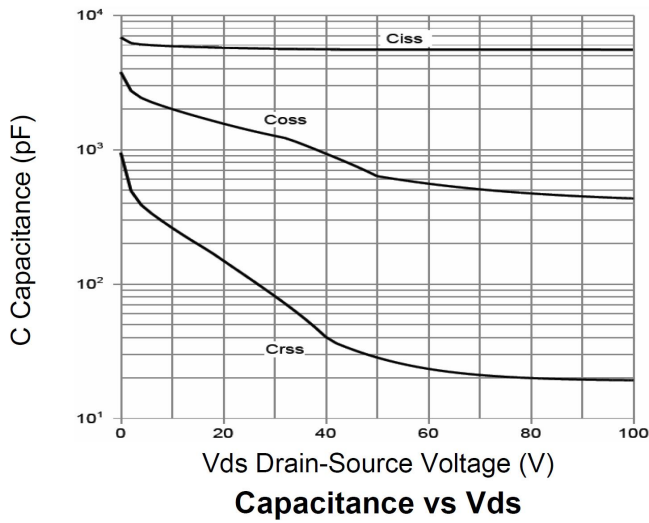
Gate Charge



$R_{ds(on)}$ - Drain Current

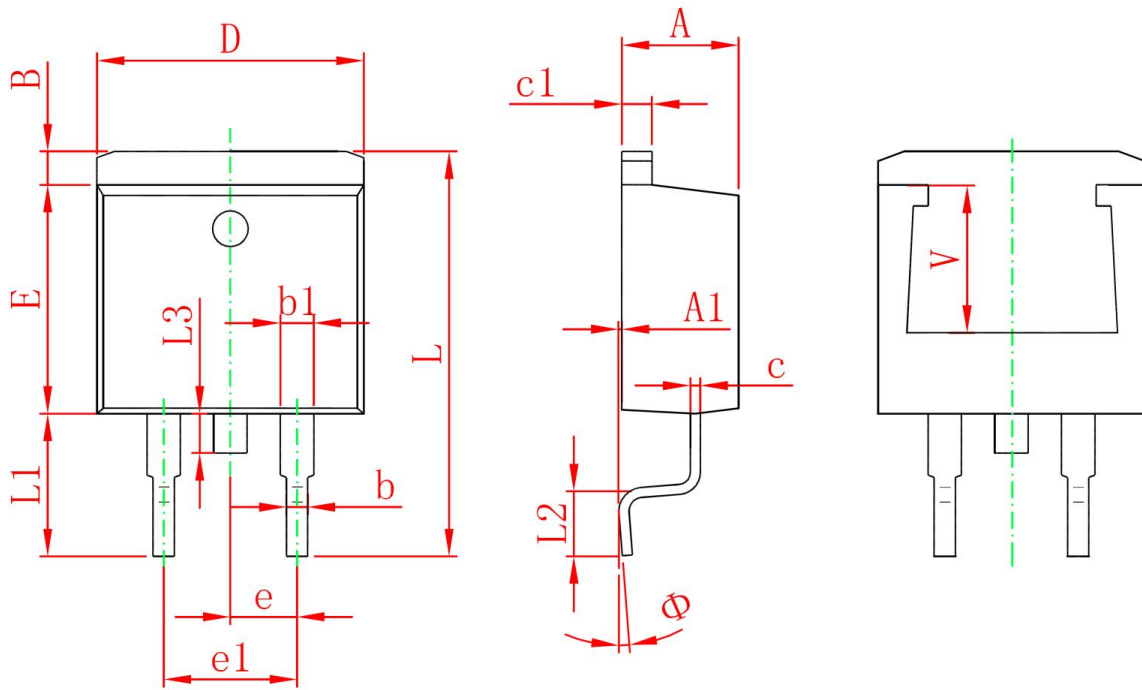


Source- Drain Diode Forward





TO-263 Package Outline Dimensions



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.	

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