Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	3.2mΩ@10V	235A

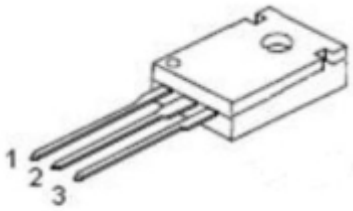
Feature

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

Applications

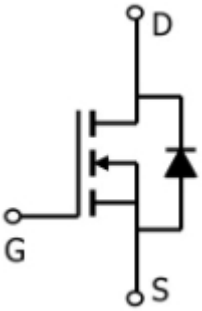
- DC-DC Converter
- High Speed Power switching
- Power Management

Package

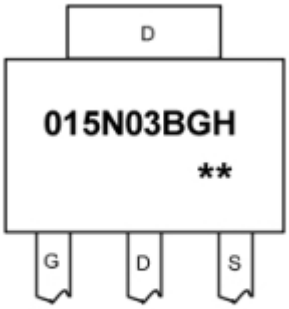


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



015N03BGH : Product code
**** : Week code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous drain current (T_C = 25℃)	I_D	235	W
Pulsed Drain Current	I_{DM}	940	A
Power dissipation(Tc=25℃)	P_D	310	mJ
Single pulsed avalanche energy1)	E_{AS}	1296	W
Thermal Resistance Junction- Case[1]	$R_{\theta JC}$	0.4	℃/ W
Operation and storage temperature	T_{STG}, T_J,	-55~ +150	℃

Electrical characteristics

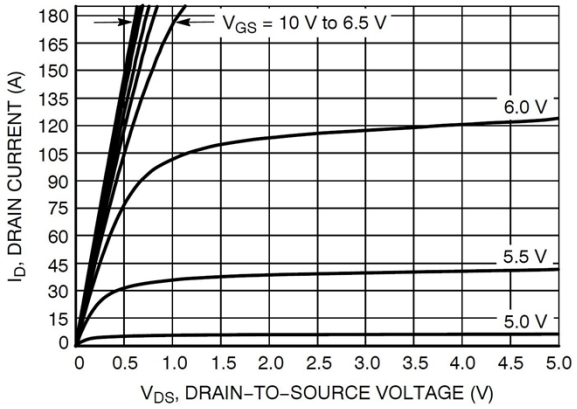
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =250μA	150			V
Drain Cut-Off Current	I_{DSS}	V_{DS} =120V,V_{GS} = 0V			1	uA
Gate-body 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	2.5	3	3.5	V
Drain-Source ON Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =50A		3.2	4	Ω
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS}=75V,V_{GS}=0V, f=1MHz		10560		pF
Output Capacitance	C_{oss}			1306		
Reverse Transfer Capacitance	C_{rss}			48		
Switching Characteristics						
Total Gate Charge(4.5V)	Q_g	V_{DS}=75V, V_{GS}=10V, I_D=70A		160		nC
Gate-Source Charge	Q_{gS}			66		
Gate-Drain Charge	Q_{gd}			42		
Turn-On Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DS}=75V, R_L=3Ω, R_G=4.7Ω		34		nS
Rise Time	T_r			27		
Turn-Off Delay Time	$T_{d(off)}$			78		
Fall Time	T_f			30		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V			1.2	V

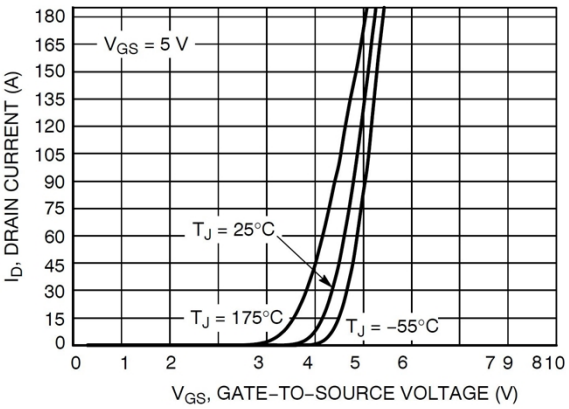
Note :

1. E_{AS} is tested at starting T_j = 25℃, V_{DD} =50V,V_{GS} = 10V,L = 0.5mH, Rg=25 mΩ ;

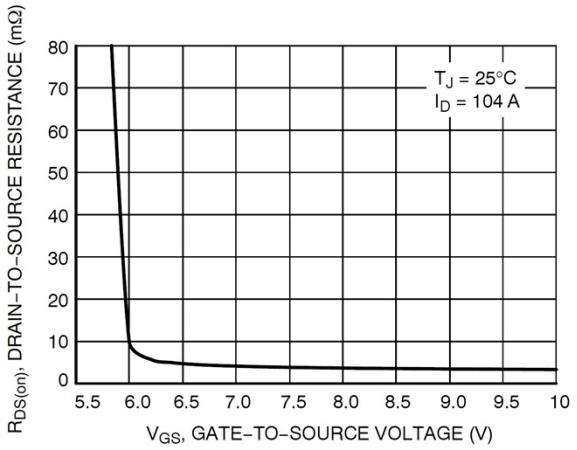
Typical Characteristics



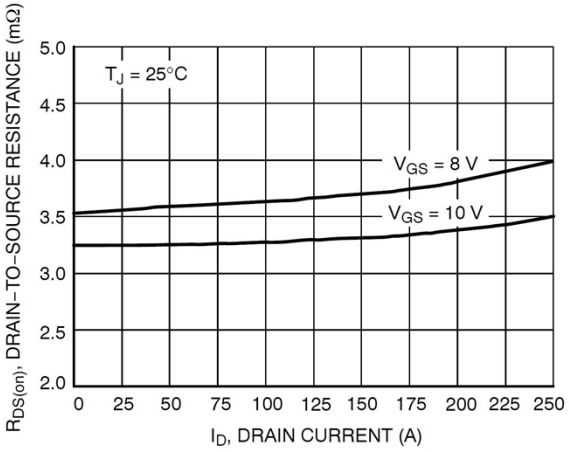
On−Region Characteristics



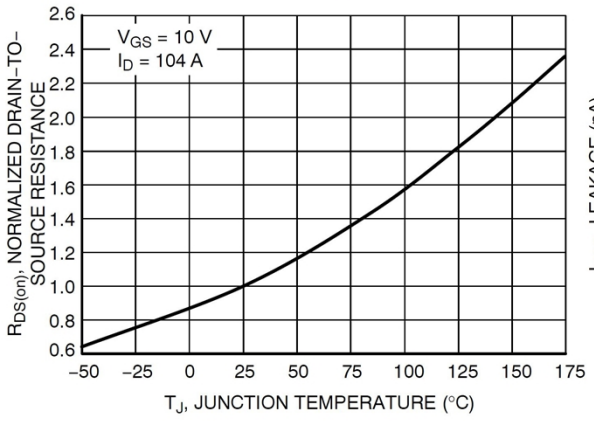
Transfer Characteristics



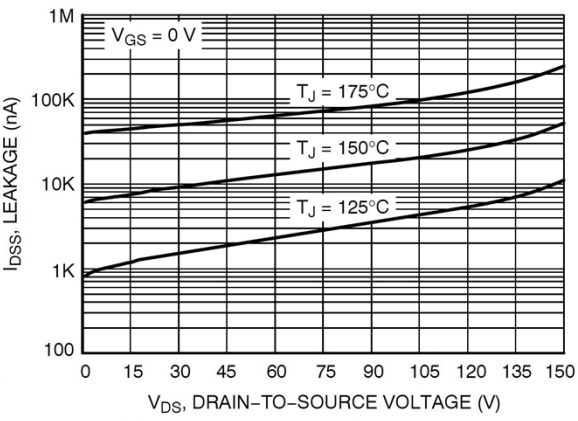
On−Resistance vs. Gate−to−Source Voltage



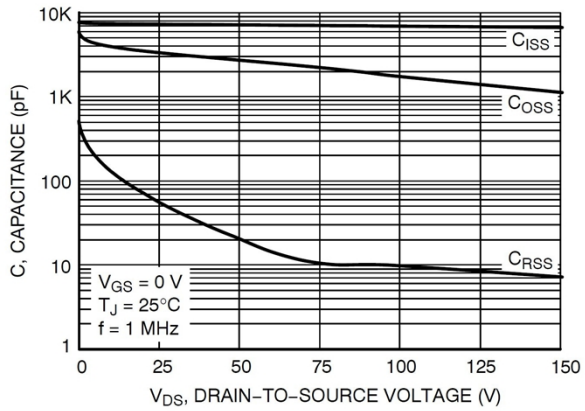
On−Resistance vs. Drain Current and Gate Voltage



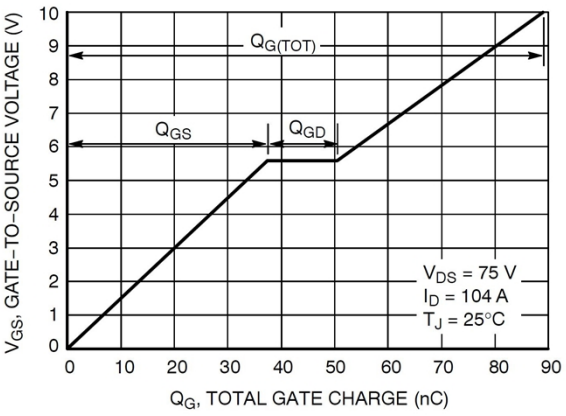
On−Resistance Variation with Temperature



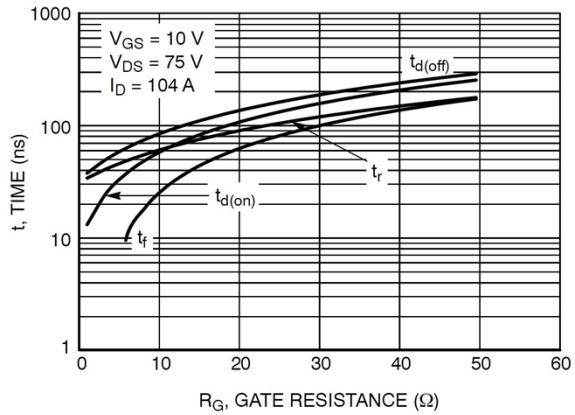
Drain−to−Source Leakage Current vs. Voltage



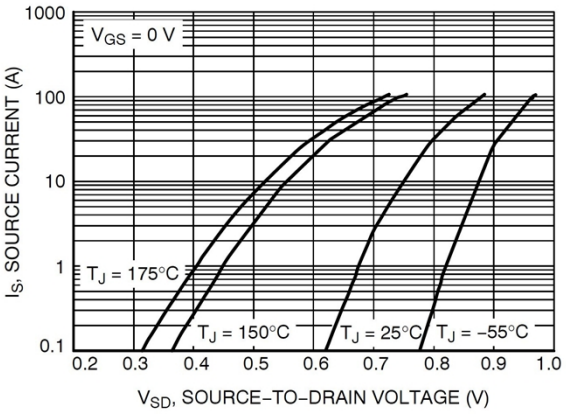
Capacitance Variation



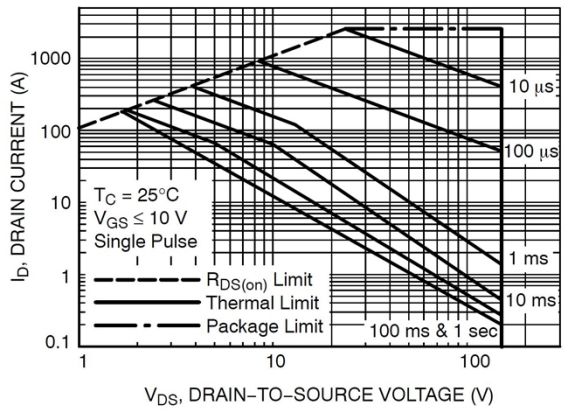
Gate−to−Source Voltage vs. Total Charge



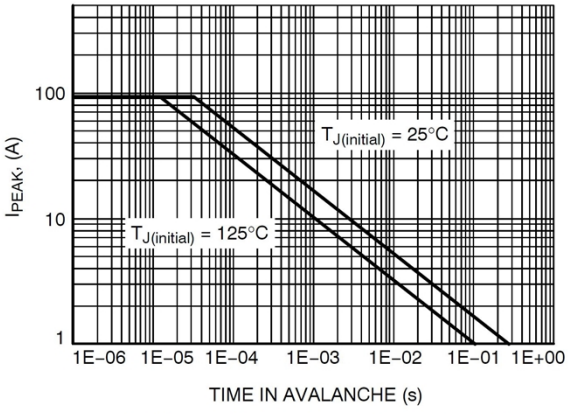
Resistive Switching Time Variation vs. Gate Resistance



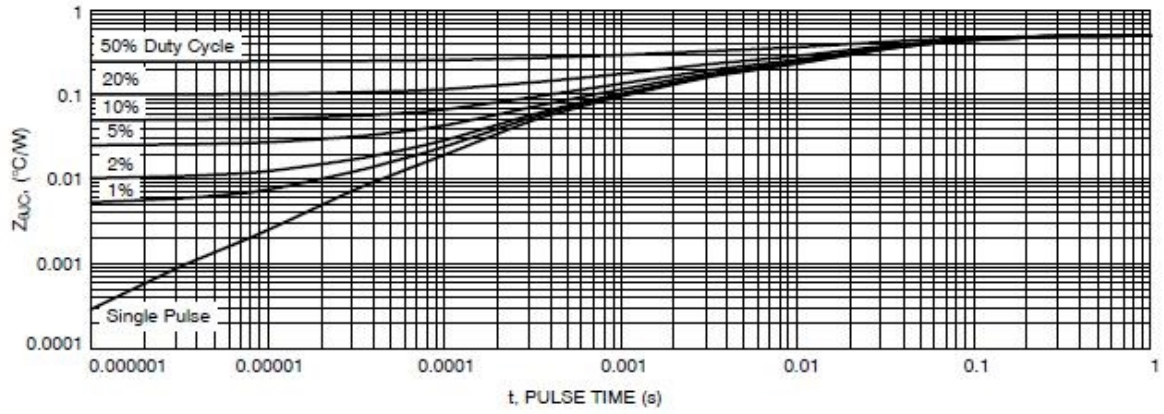
Diode Forward Voltage vs. Current



Maximum Rated Forward Biased Safe Operating Area

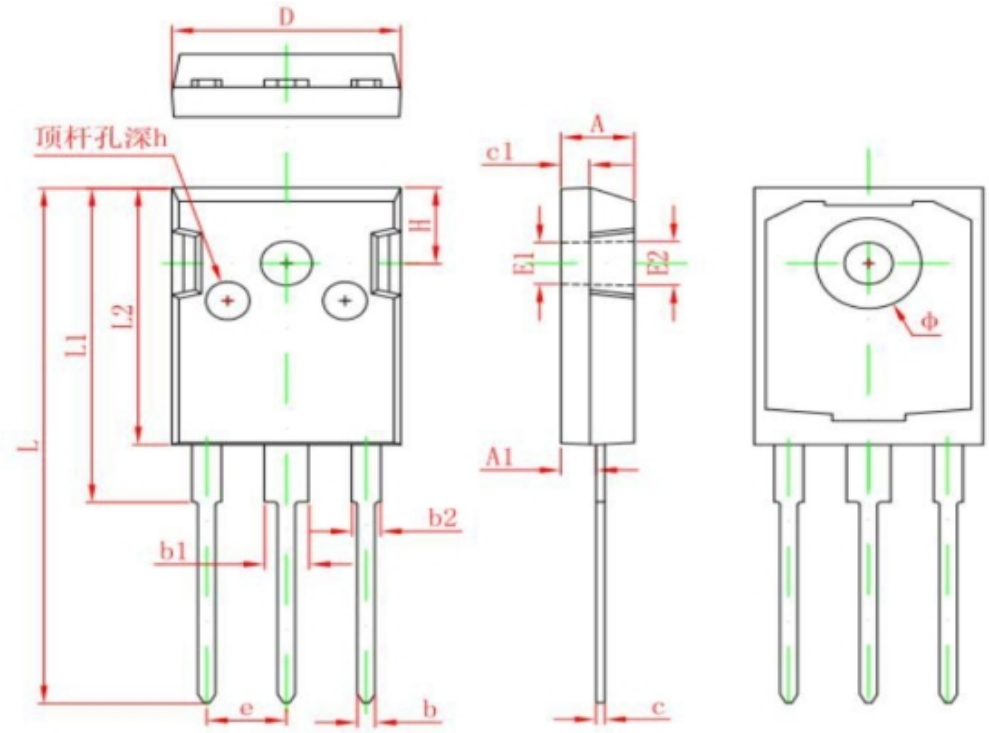


Maximum Drain Current vs. Time in Avalanche



Thermal Response

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