Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	3.2mΩ@10V	210A

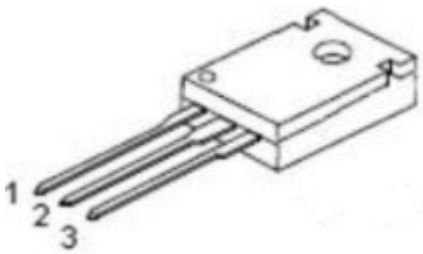
Feature

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

Application

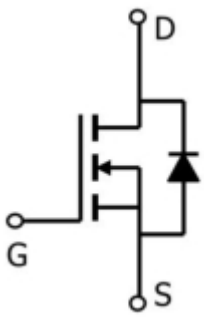
- Power switching application
- DC-DC Converter
- Power Management

Package

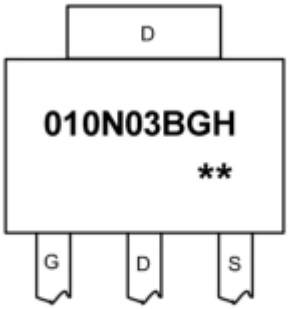


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



010N03BGH : **Product code**
** : **Week code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C =25℃)	I_D	210	A
Pulsed Drain Current	I_{DM}	840	A
Power dissipation (T_C =25℃)	P_D	300	W
Single Pulse Avalanche Energy[1]	E_{AS}	1296	mJ
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.4	℃/ W
Operation and storage temperature	T_{STG}, T_J	-55~ +150	℃

Electrical characteristics

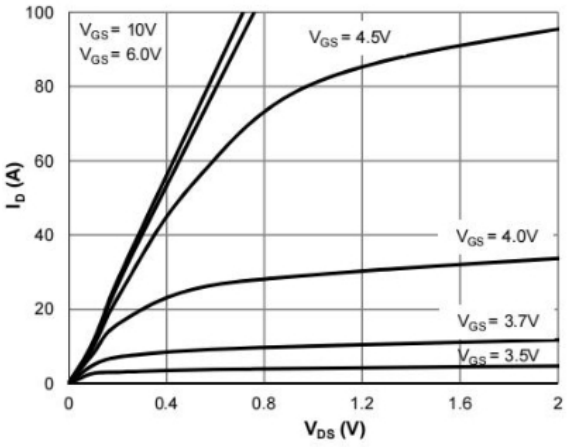
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =250μA	100			V
Drain Cut-Off Current	I_{DSS}	V_{DS} =80V,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	2.8	4	V
Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		3.2	4.5	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V, f=1MHz		6750		pF
Output Capacitance	C_{oss}			650		
Reverse Transfer Capacitance	C_{rss}			46		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=50V, V_{GS}=10V, I_D=50A		100		nC
Gate-Source Charge	Q_{gs}			43		
Gate-Drain Charge	Q_{gd}			19		
Turn-On Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DS}=50V, I_D=50A, R_G=3.0Ω		20		nS
Rise Time	T_r			70		
Turn-Off Delay Time	$T_{d(off)}$			50		
Fall Time	T_f			16		
Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A			1.2	V

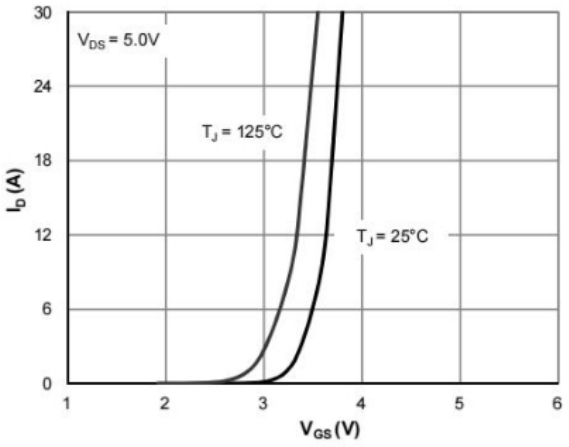
Notes:

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

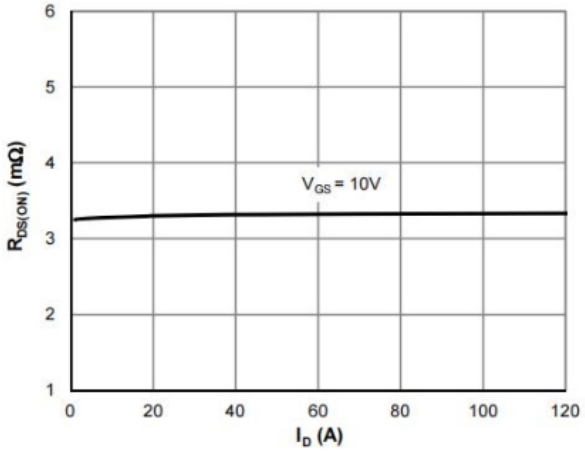
Typical Characteristics



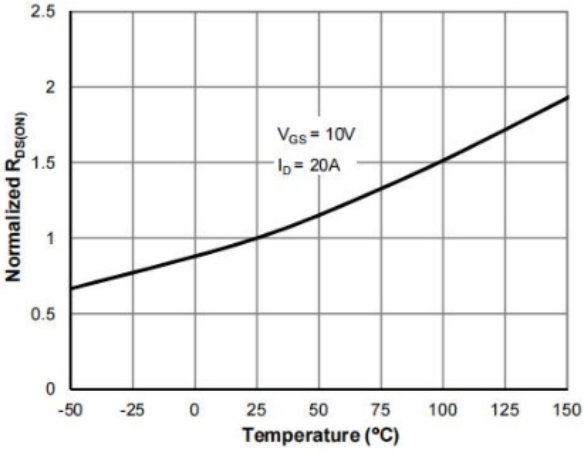
Typical Output Characteristics



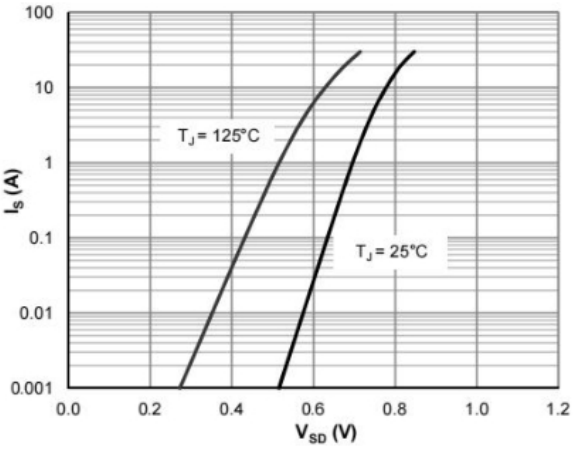
Transfer Characteristics



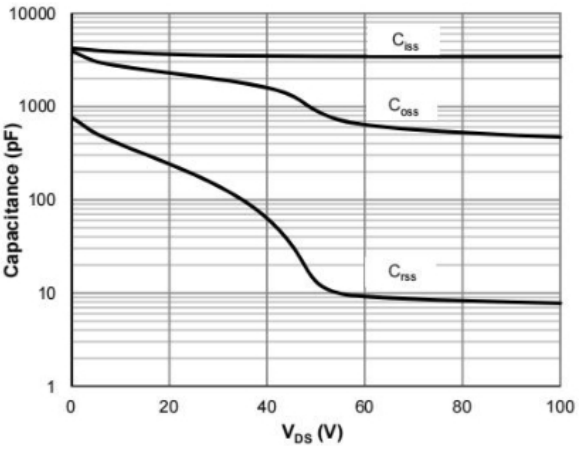
On-Resistance vs.Drain Current



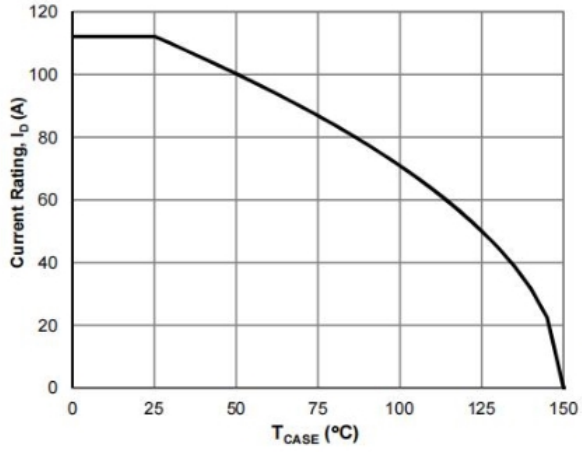
On-Resistance vs.Junction Temperature



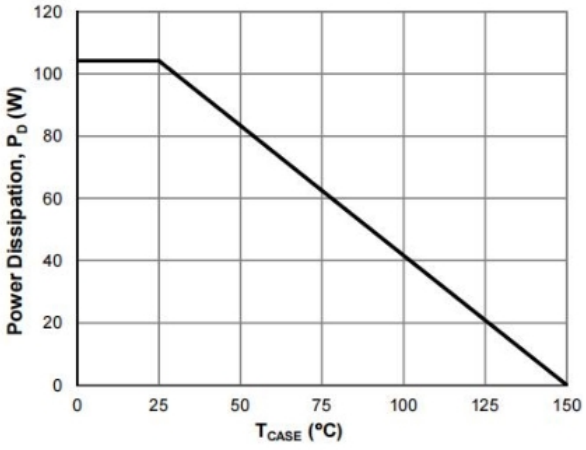
Body-Diode Characteristics



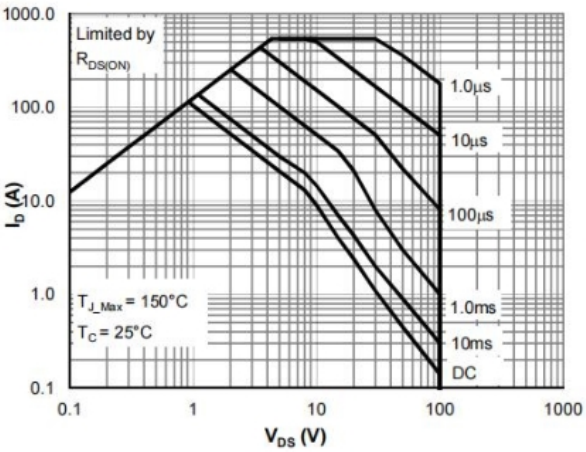
Capacitance Characteristics



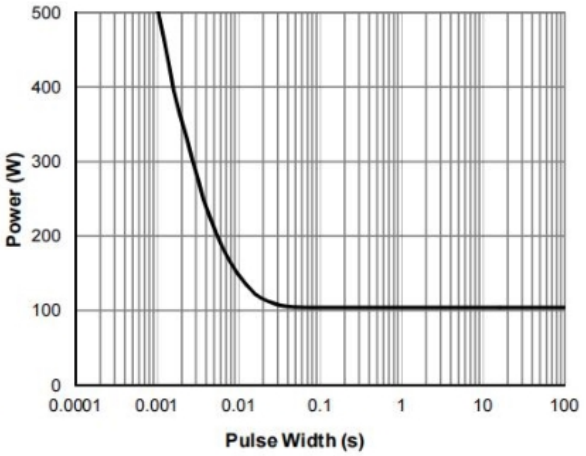
Current De-rating



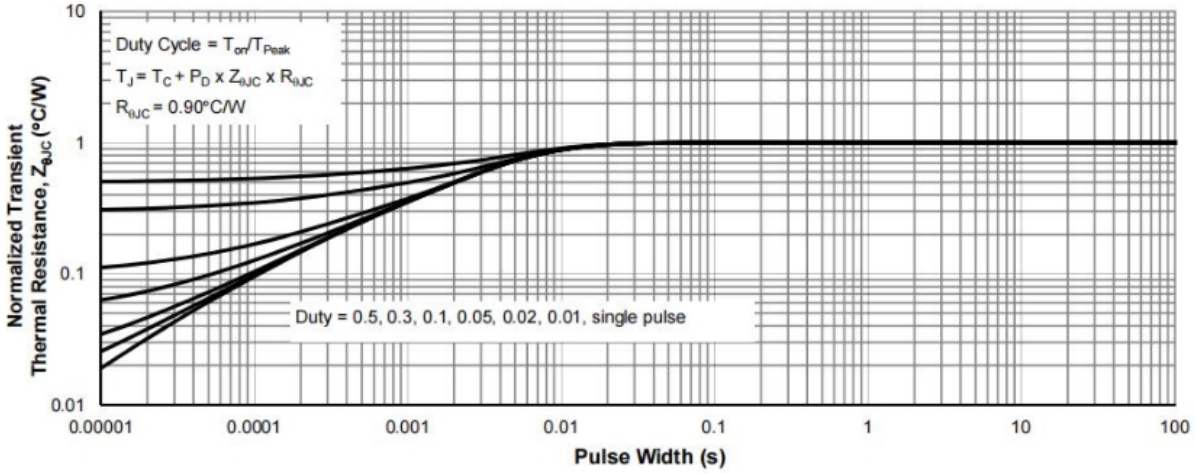
Power De-rating



Maximum Safe Operating Area

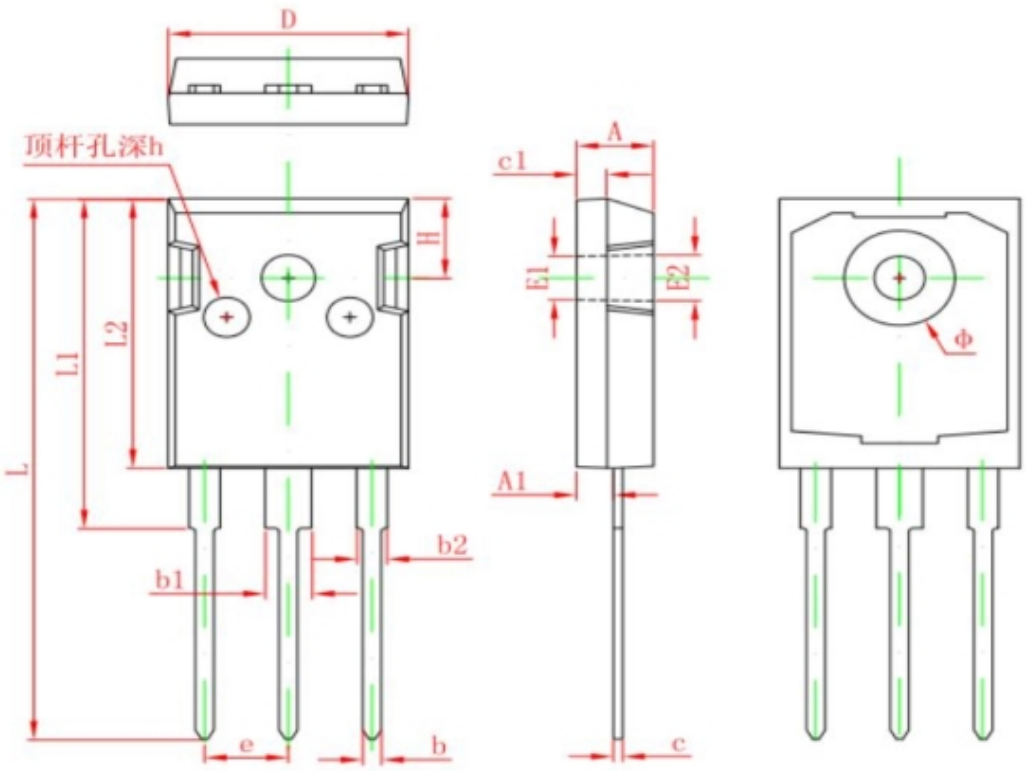


Single Pulse Power Rating,Junction-to-Case



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