

### Product Summary

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

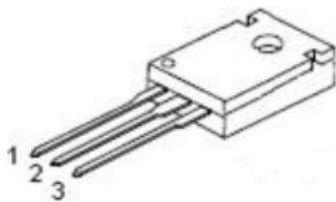
### Feature

- Fast Switching
- Low Gate Charge and R<sub>DS(on)</sub>
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

### Applications

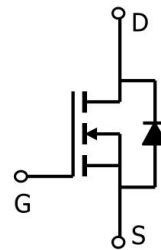
- Power switching application
- DC-DC Converter
- Power Management

### Package

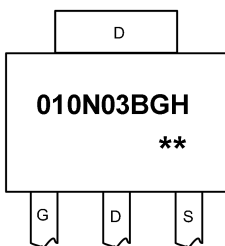


TO-247(1:G 2:D 3:S)

### Circuit diagram



### Marking



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

**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	Rating	Unit
Drain source voltage	$V_{DS}$	100	V
Gate source voltage	$V_{GS}$	$\pm 20$	V
Continuous drain current(Tc=25°C)	$I_D$	210	A
Pulsed drain current	$I_{DM}$	840	A
Power dissipation(Tc=25°C)	$P_D$	300	W
Single pulsed avalanche energy1)	$E_{AS}$	1296	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.4	°C/W
Operation and storage temperature	$T_{stg}, T_j$	-55 to 150	°C

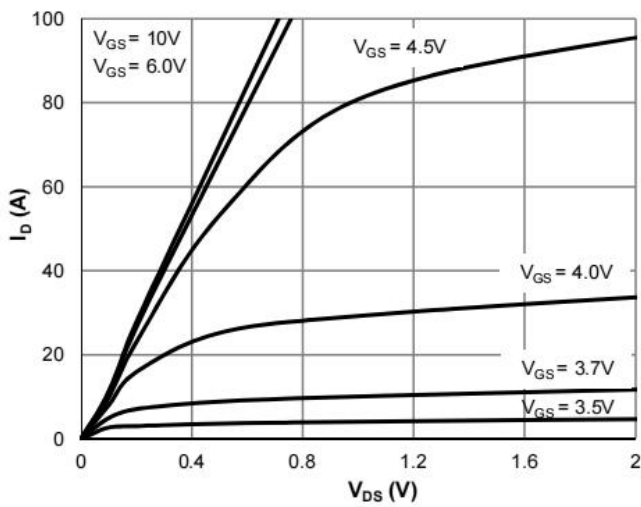
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	100	-	-	V
Drain Cut-Off Current	$I_{DSS}$	$V_{DS} = 80V, V_{GS} = 0V$	-	-	1	$\mu A$
Gate Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	$\pm 0.1$	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0	2.8	4.0	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$	-	3.2	4.5	m $\Omega$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz$	-	6750	-	pF
Output Capacitance	$C_{oss}$		-	650	-	
Reverse Transfer Capacitance	$C_{rss}$		-	46	-	
<b>Switching Characteristics</b>						
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	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 50V, I_D = 50A, R_G = 3.0\Omega$	-	20	-	ns
Rise Time	$t_r$		-	70	-	
Turn-Off Delay Time	$t_{d(off)}$		-	50	-	
Fall Time	$t_f$		-	16	-	
<b>Drain-Source Body Diode Characteristics</b>						
Source-Drain Diode Forward Voltage	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$	-	-	1.2	V

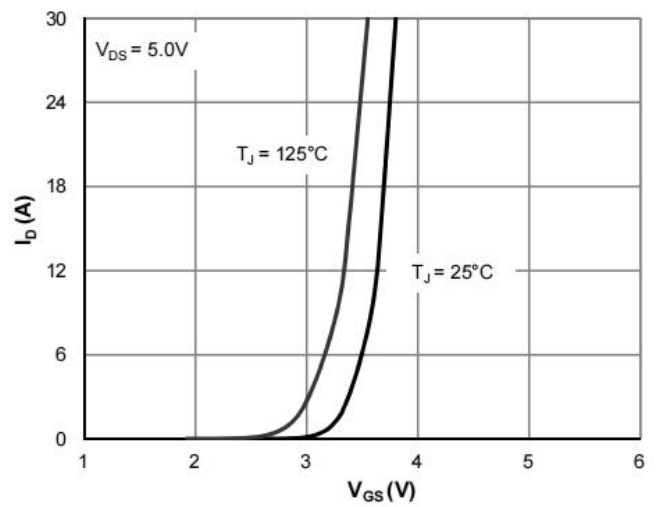
Note:

- $E_{AS}$  is tested at starting  $T_j = 25^\circ C, V_{DD}=50V, V_{GS} = 10V, L = 0.5mH, R_g=25m\Omega$ ;

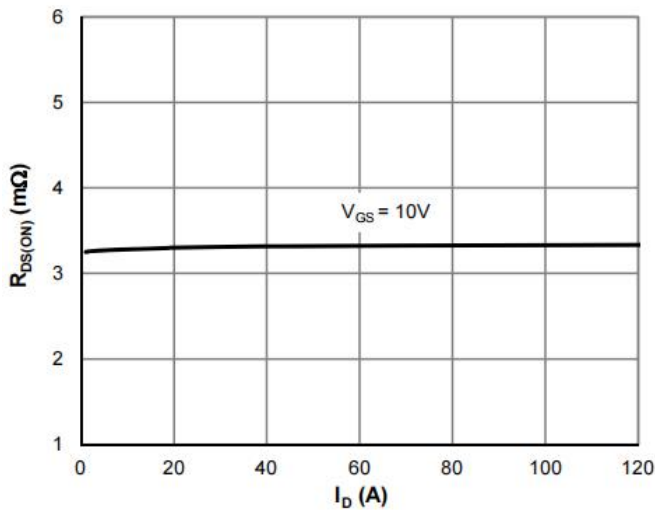
**Typical Characteristics**



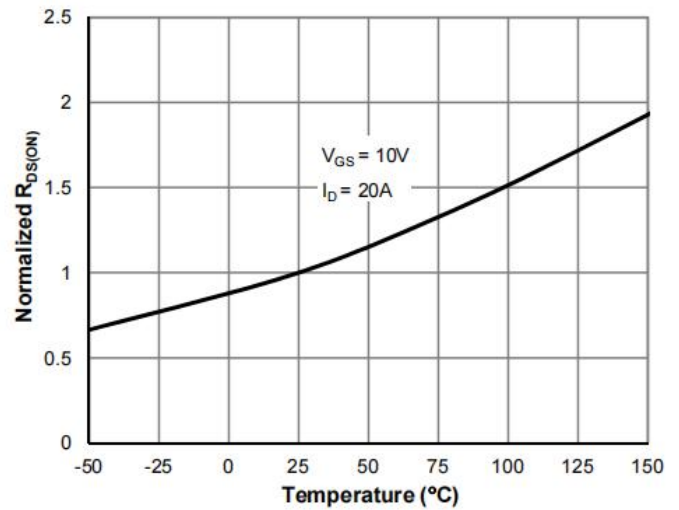
Typical Output Characteristics



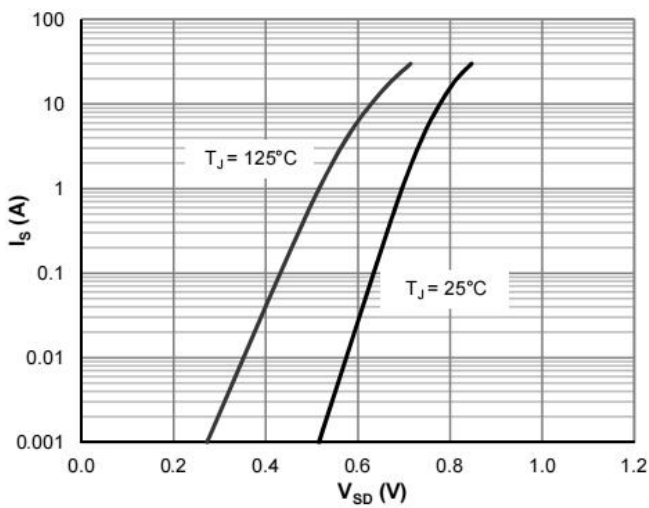
Transfer Characteristics



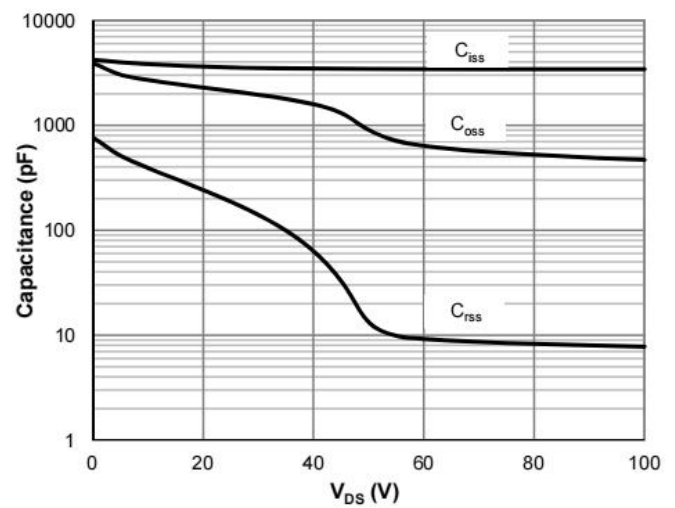
On-Resistance vs. Drain Current



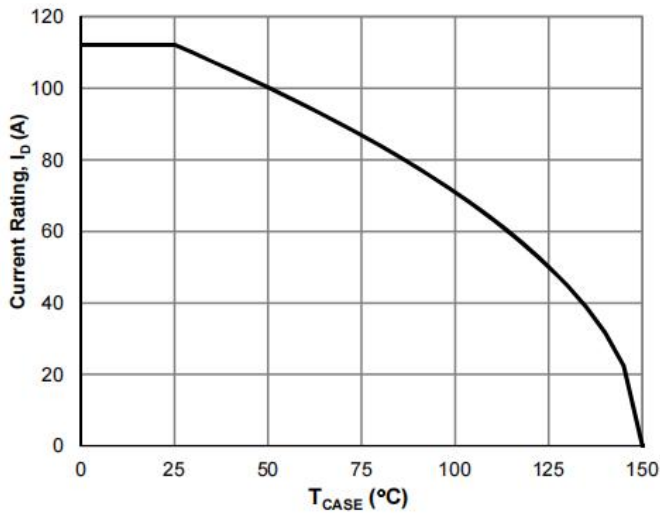
On-Resistance vs. Junction Temperature



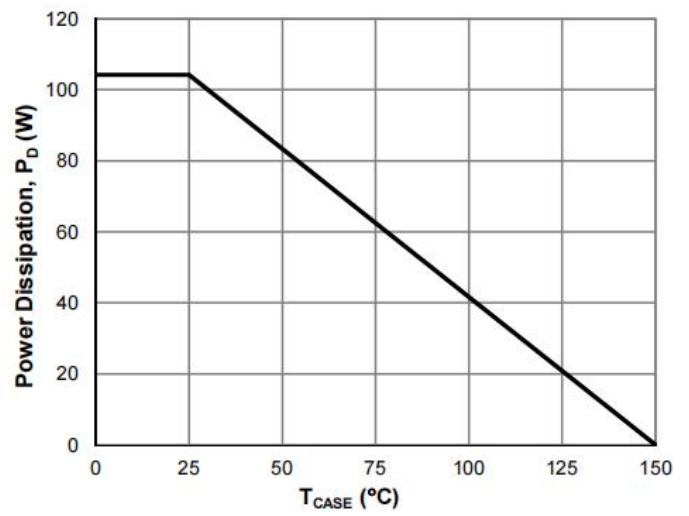
Body-Diode Characteristics



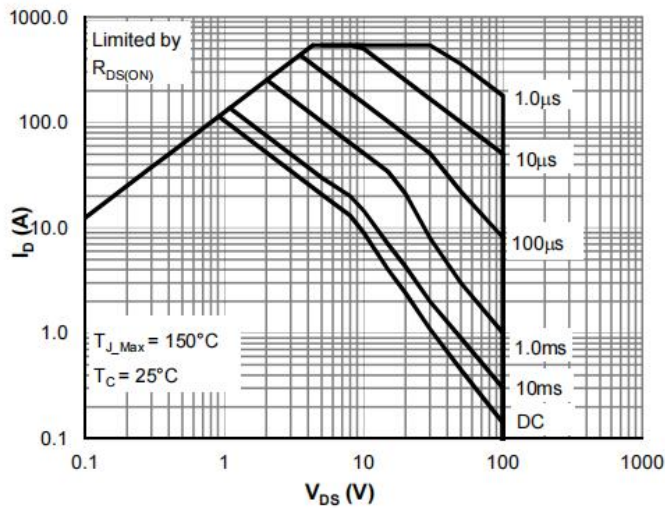
Capacitance Characteristics



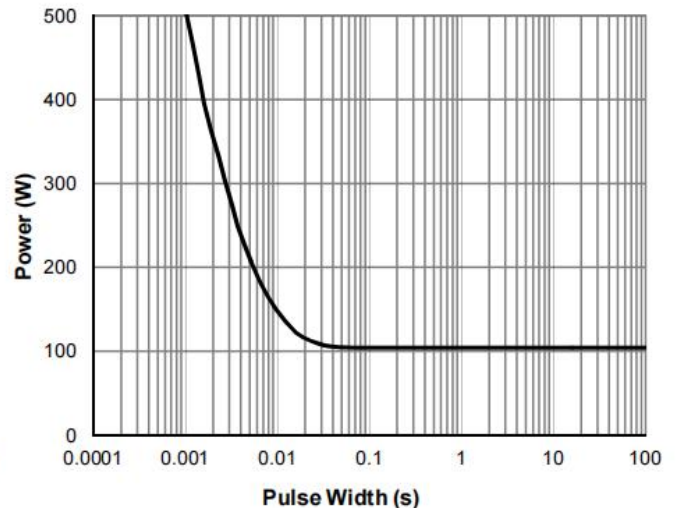
Current De-rating



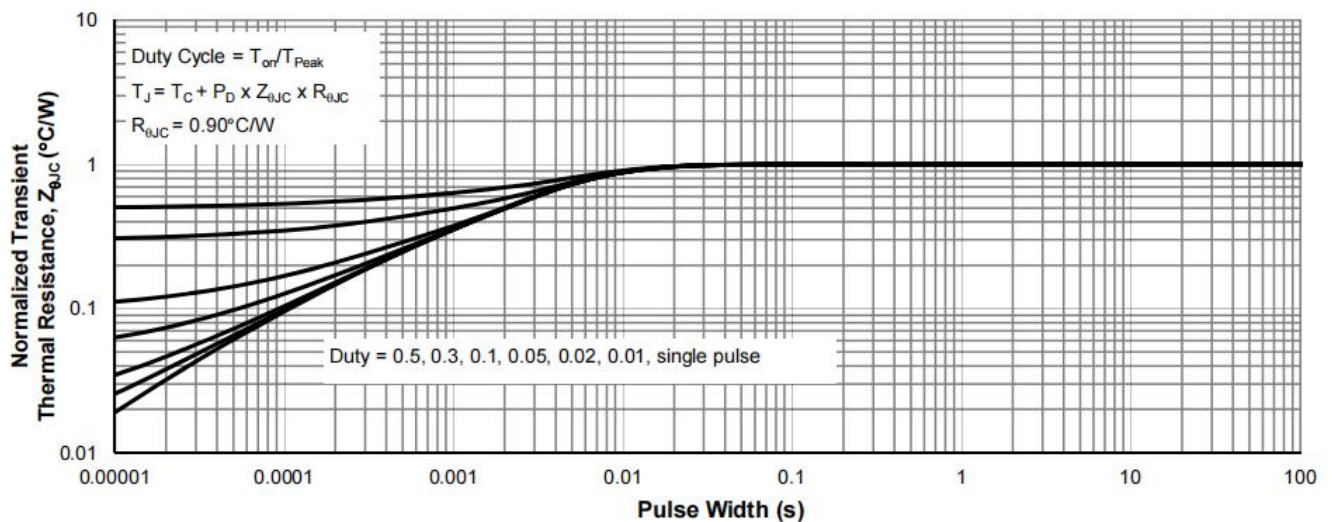
Power De-rating



Maximum Safe Operating Area



Single Pulse Power Rating, Junction-to-Case



Normalized Maximum Transient Thermal Impedance



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