

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	4.7mΩ@10V	200A

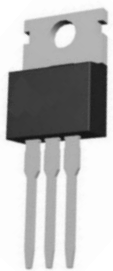
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology

Application

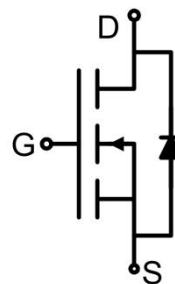
- Power switching application
- DC-DC Converter
- Power Management

Package

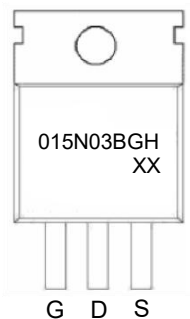


TO-220AB

Circuit diagram



Marking



Absolute maximum ratings($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	200	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	125	A
Pulsed Drain Current	I_{DM}	800	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	1521	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	300	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.42	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

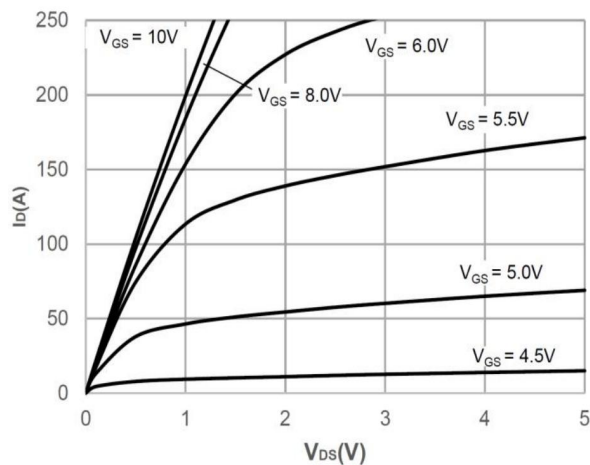
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	150			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=120V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	3	3.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		3.7	4.7	m Ω
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS}=75V, V_{GS}=0V, f=1MHz$		10402		pF
Output Capacitance	C_{oss}			635		
Reverse Transfer Capacitance	C_{rss}			24		
Total Gate Charge	Q_g	$V_{DS}=75V, V_{GS}=10V, I_D=70A$		148		nC
Gate-Source Charge	Q_{gs}			58		
Gate-Drain Charge	Q_{gd}			40		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=75V, V_{GS}=10V, R_L=3\Omega$ $R_G=4.7\Omega$		40		nS
Turn-on rise time	t_r			72		
Turn-off delay time	$t_{d(off)}$			108		
Turn-off fall time	t_f			58		
Source-Drain Diode characteristics						
Diode Continuous Current	I_S				200	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$			1.2	V
Reverse recover time	T_{rr}	$I_S=80A, di/dt=100A/us$		96		nS
Reverse recovery charge	Q_{rr}	$T_J=25^{\circ}C$		310		nC

Notes:

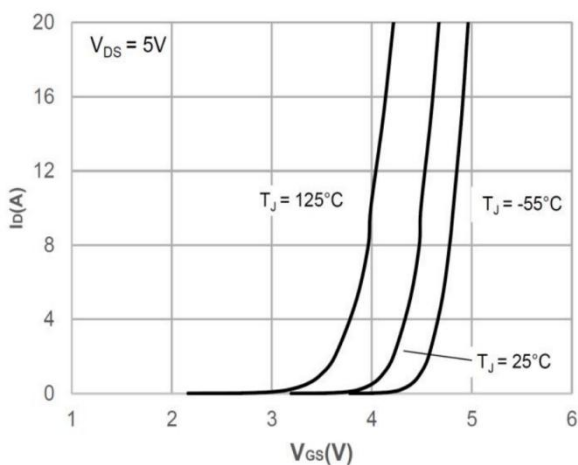
1) The EAS test condition is $V_{DD}=50\text{V}, V_{GS}=10\text{V}, L=0.5\text{mH}, R_G=25\Omega$.

2) Guaranteed by design, not subject to production testing.

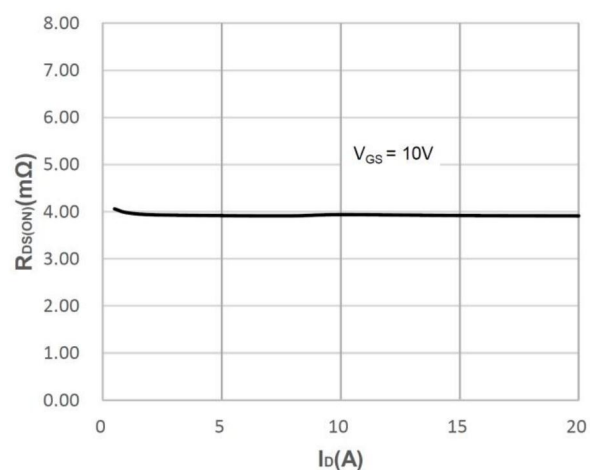
Typical Characteristics



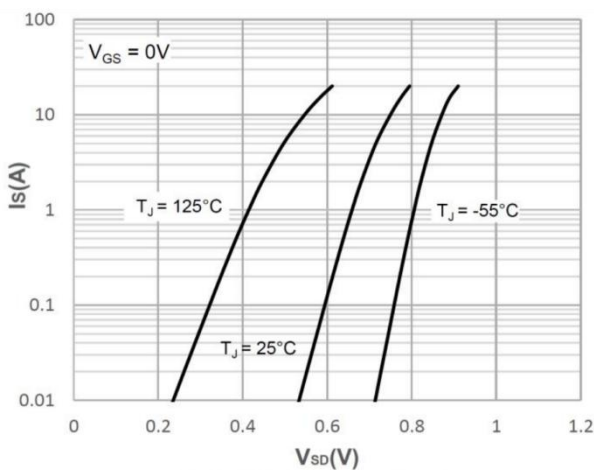
Output Characteristics



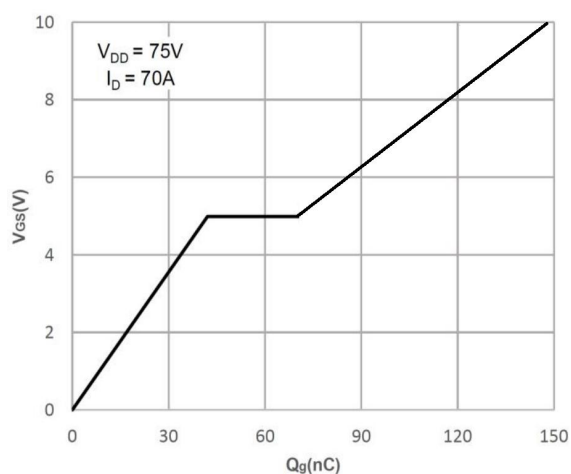
Typical Transfer Characteristics



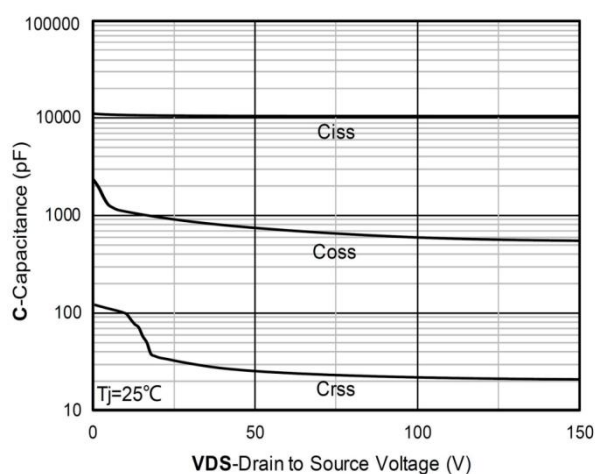
On-resistance vs. Drain Current



Body Diode Characteristics

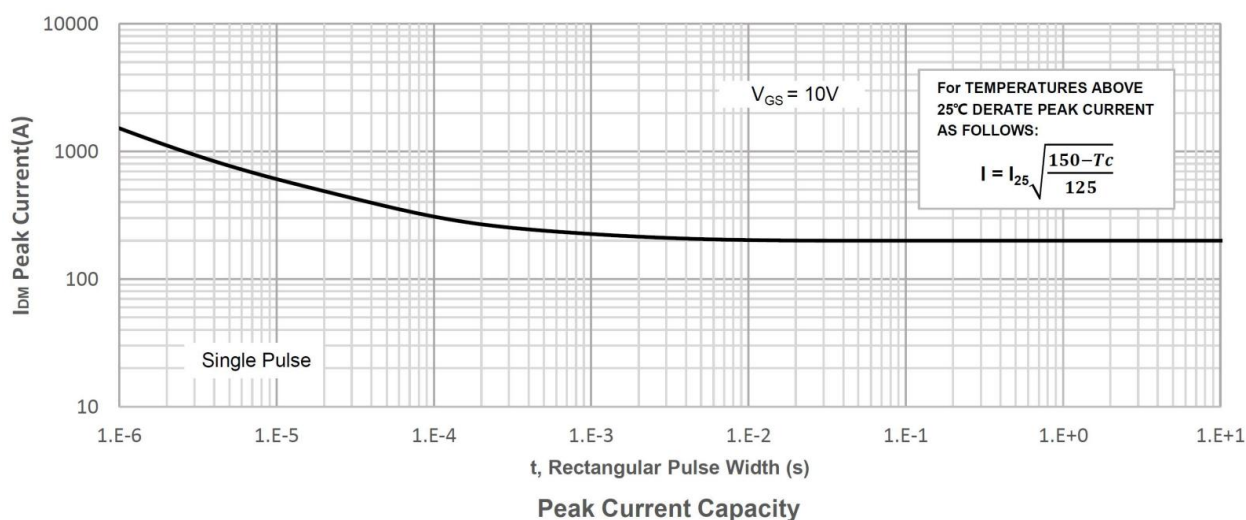
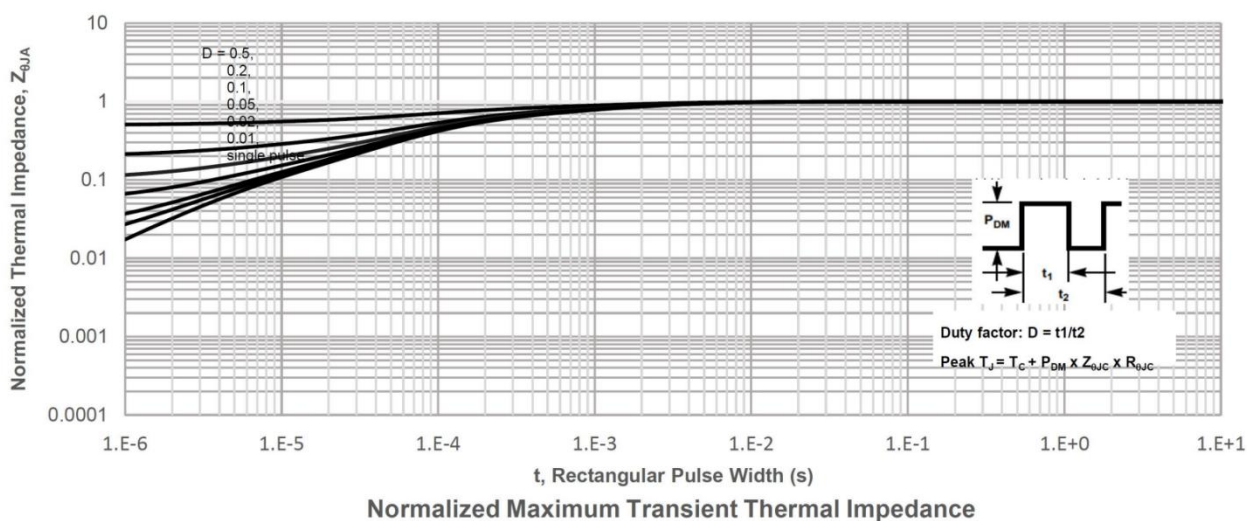
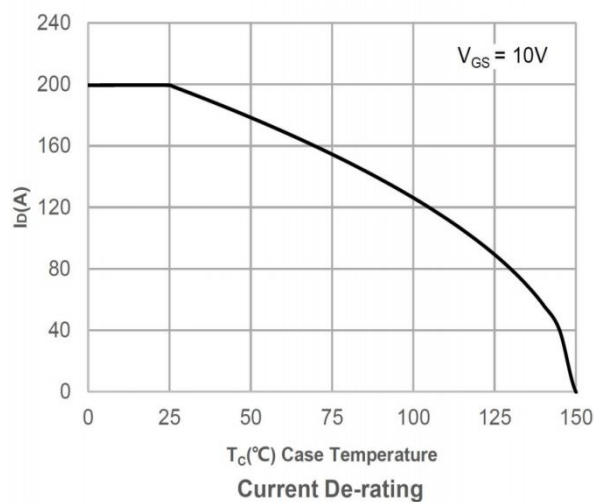
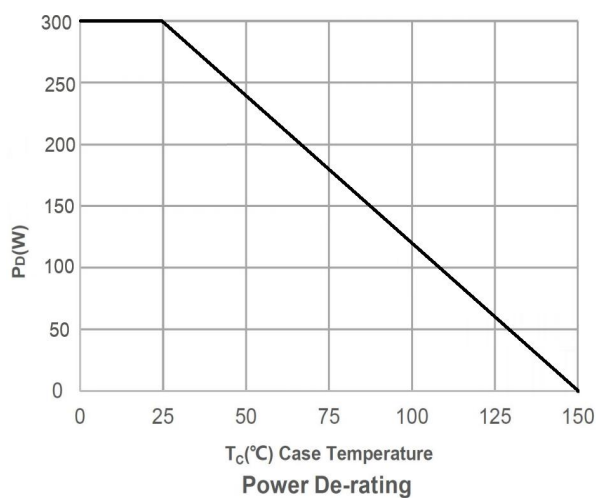


Gate Charge Characteristics

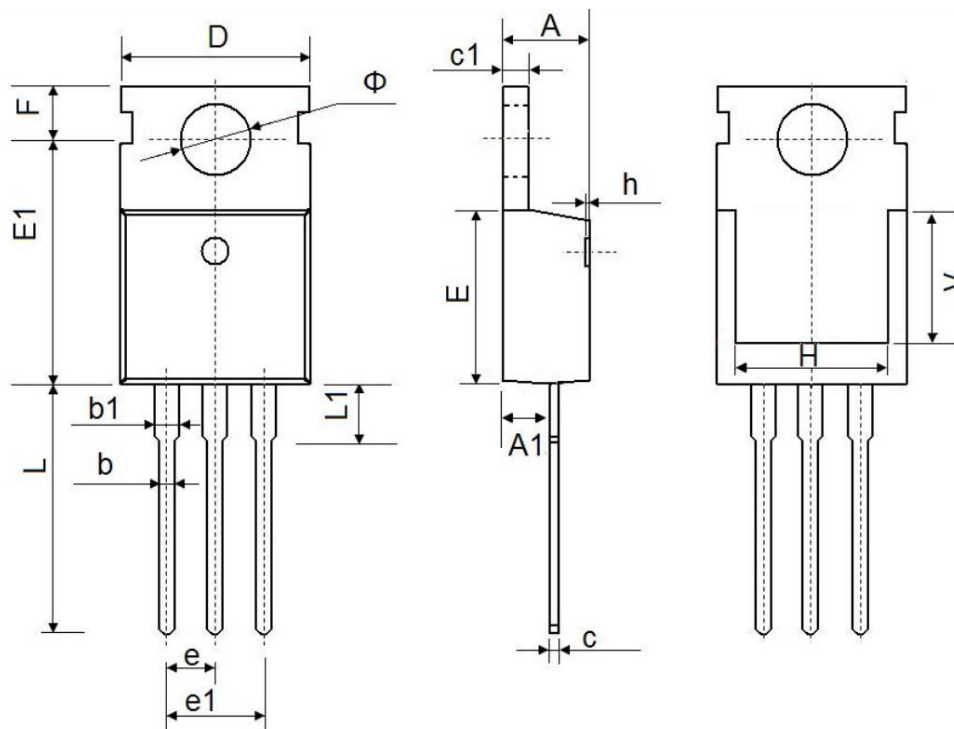


Capacitance Characteristics

Typical Characteristics



TO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	13.050	0.498	0.510
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	6.900 REF.		0.276 REF.	
φ	3.400	3.800	0.134	0.150