

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
120V	3.7mΩ@10V	110A

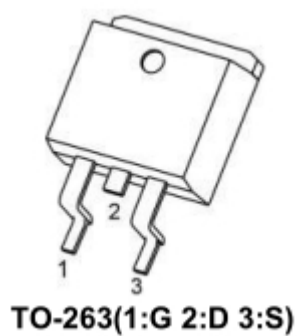
## Feature

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

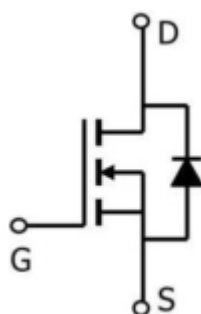
## Applications

- Power switching application DC-DC Converter
- Power Management

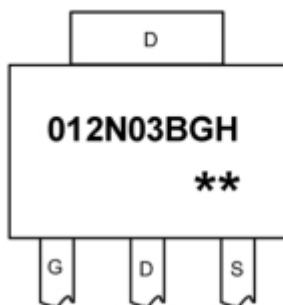
## Package



## Circuit diagram



## Marking



**012N03BGH** : Product code  
**\*\*** : Week code

## Absolute maximum ratings

(T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	120	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous drain current (T <sub>C</sub> = 25°C)	I <sub>D</sub>	110	W
Pulsed Drain Current <sup>2</sup>	I <sub>DM</sub>	440	A
Power Dissipation <sup>4</sup> (T <sub>C</sub> = 25°C)	P <sub>D</sub>	220	W
Single Pulse Avalanche Energy <sup>1</sup>	E <sub>AS</sub>	1296	mJ
Thermal Resistance Junction- Case	R <sub>θJC</sub>	0.57	°C/ W
Operation and storage temperature	T <sub>STG</sub> , T <sub>J</sub>	-55~ +150	°C

## Electrical characteristics

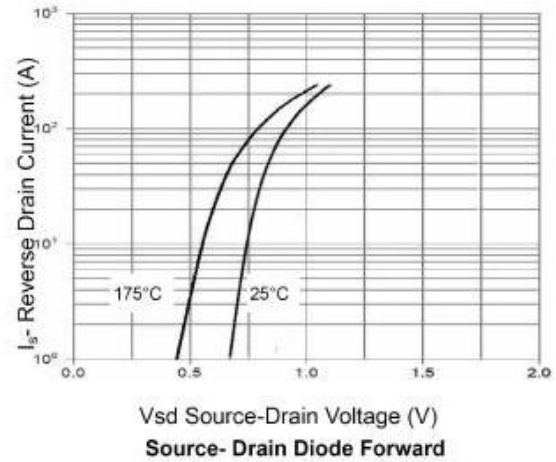
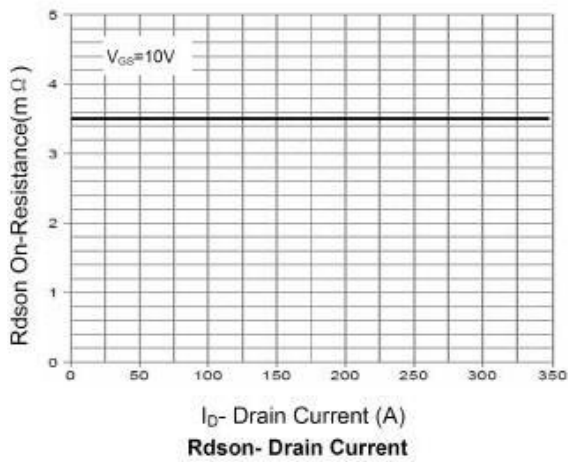
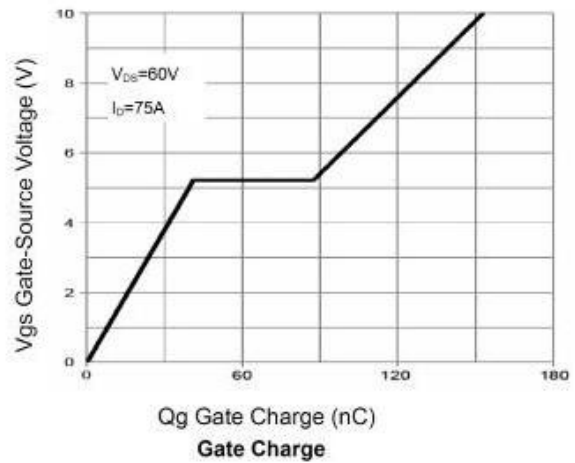
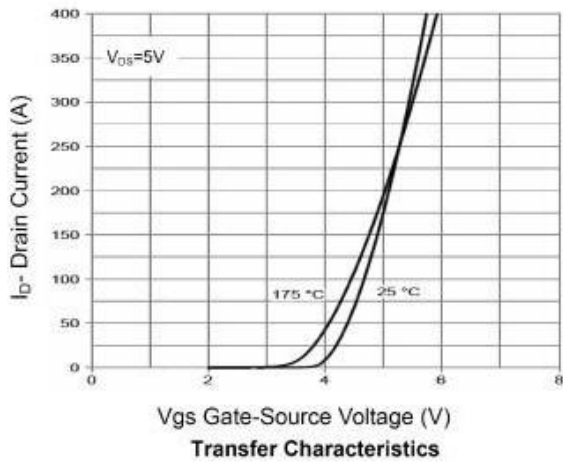
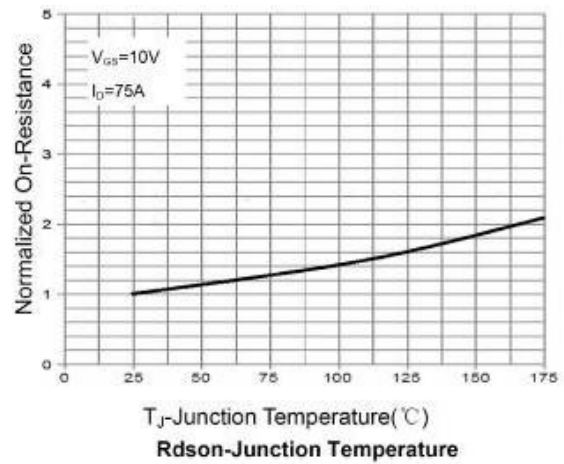
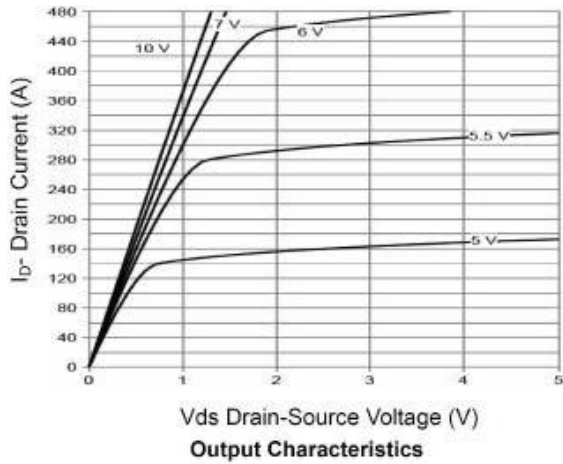
(T<sub>A</sub>=25°C, unless otherwise noted)

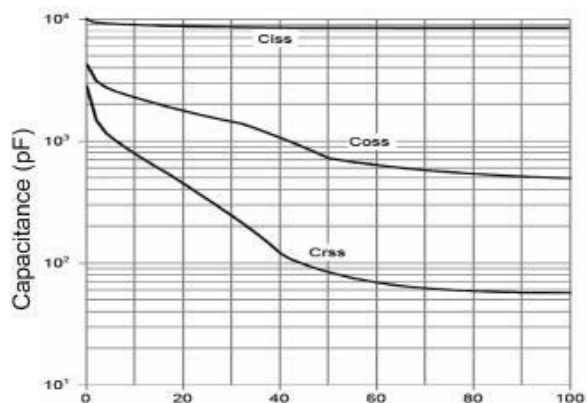
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	120			V
Drain Cut-Off Current	$I_{DSS}$	$V_{DS} = 96V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 0.1$	$\mu A$
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Drain-Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 50A$		3.7	4.7	$\Omega$
Dynamic characteristics <sup>4</sup>						
Input Capacitance	$C_{iss}$	$V_{DS} = 60V, V_{GS} = 0V,$ $f = 1MHz$		8505		pF
Output Capacitance	$C_{oss}$			620		
Reverse Transfer Capacitance	$C_{rss}$			71		
Switching Characteristics						
Total Gate Charge(4.5V)	$Q_g$	$V_{DS} = 60V, V_{GS} = 10V,$ $I_D = 50A$		152		nC
Gate-Source Charge	$Q_{gs}$			43		
Gate-Drain Charge	$Q_{gd}$			46		
Turn-On Delay Time	$T_{d(on)}$	$V_{GS} = 10V, V_{DS} = 50V,$ $I_D = 50A, R_G = 1.6\Omega$		25		nS
Rise Time	$T_r$			15		
Turn-Off Delay Time	$T_{d(off)}$			52		
Fall Time	$T_f$			18		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$			1.2	V

### Note :

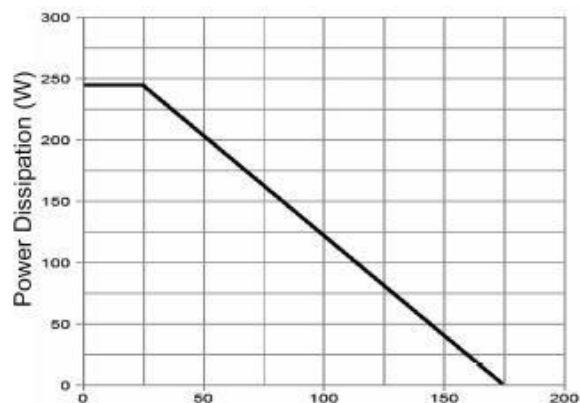
1. E<sub>AS</sub> is tested at starting T<sub>J</sub> = 25°C, V<sub>DD</sub> = 75V, V<sub>GS</sub> = 10V, L = 0.5mH, R<sub>G</sub> = 25 Ω;

## Typical Characteristics

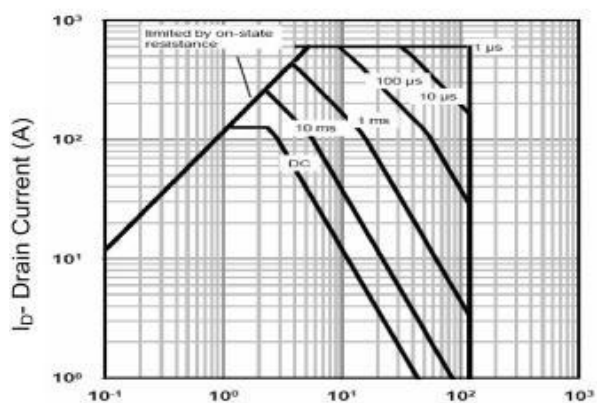




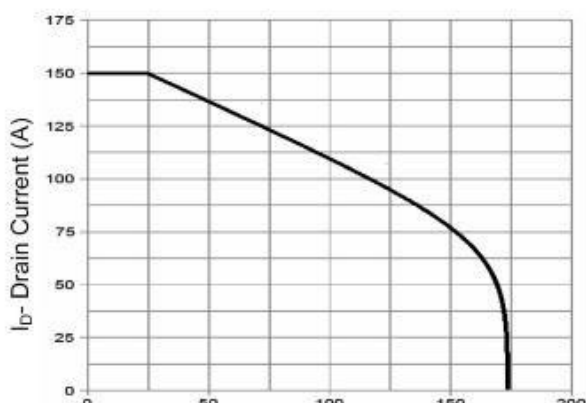
Vds Drain-Source Voltage (V)  
Capacitance vs Vds



Tc-Case Temperature(°C)  
Power De-rating



Vds Drain-Source Voltage (V)  
Safe Operation Area



Tc-Case Temperature (°C)  
Current De-rating

