

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	6.3m $\Omega$ @10V	120A

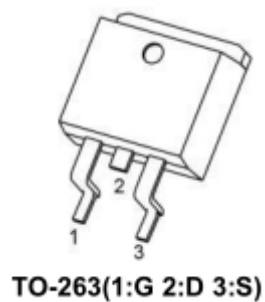
## Feature

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

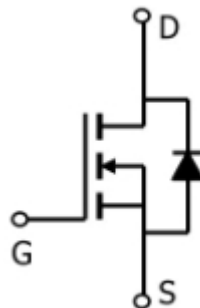
## Application

- Power switching application
- Battery management
- Uninterruptible power supply

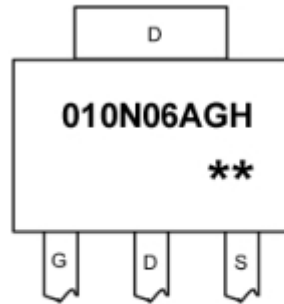
## Package



## Circuit diagram



## Marking



**010N06AGH** : 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>	100	V
Gate source voltage	V <sub>GS</sub>	±20	V
Continuous drain current(Tc=25°C)	I <sub>D</sub>	120	A
Pulsed drain current	I <sub>DM</sub>	480	A
Continuous diode forward current(Tc=25°C)	I <sub>S</sub>	54	A
Power dissipation(Tc=25°C)	P <sub>D</sub>	160	W
Single pulsed avalanche energy <sup>1)</sup>	E <sub>AS</sub>	729	mJ
Thermal resistance, junction-case	R <sub>θJC</sub>	0.78	°C/ W
Operation and storage temperature	T <sub>STG</sub> , T <sub>J</sub>	-55 to 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	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = 80V, V_{GS} = 0V$			1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 0.1$	$\mu A$
Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 40A$		6.1	7.5	m $\Omega$
Dynamic characteristics						
Total Gate Charge (4.5V)	$Q_g$	$V_{DS} = 50V, I_D = 50A,$ $V_{GS} = 10V$		61		nC
Gate-Source Charge	$Q_{gS}$			19		
Gate-Drain Charge	$Q_{gd}$			12		
Input Capacitance	$C_{iss}$	$V_{DS} = 50V, V_{GS} = 0V,$ $f = 1MHz$		4750		pF
Output Capacitance	$C_{oss}$			810		
Transfer Capacitance	$C_{rss}$			46		
Turn-On Delay Time	$T_{d(on)}$	$V_{GS} = 10V, V_{DS} = 50V,$ $I_D = 50A, R_G = 4.7\Omega$		14		nS
Rise Time	$T_r$			56		
Turn-Off Delay Time	$T_{d(off)}$			37		
Fall Time	$T_f$			9		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 1A$			1.2	V
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F = 50A,$ $dI/dt = 100A/\mu s$		61		ns
Body Diode Reverse Recovery Charge	$Q_{rr}$			140		nC

### Notes:

1 EAS condition : T<sub>j</sub> = 25°C, V<sub>DD</sub>=50V, V<sub>G</sub>=10V, L=0.5mH, R<sub>G</sub>=25Ω

## Typical Characteristics

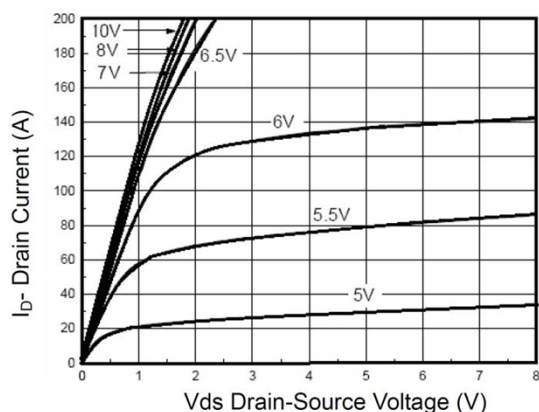


Figure 1 Output Characteristics

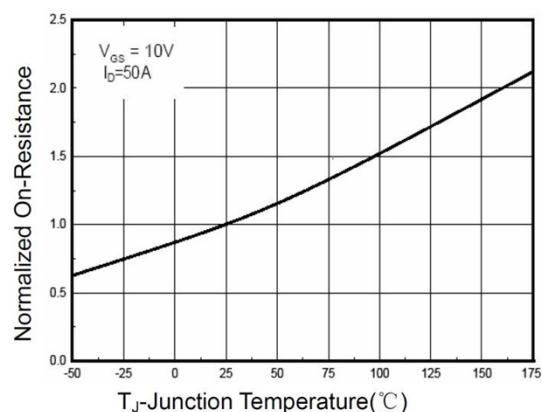


Figure 4 Rdson-Junction Temperature

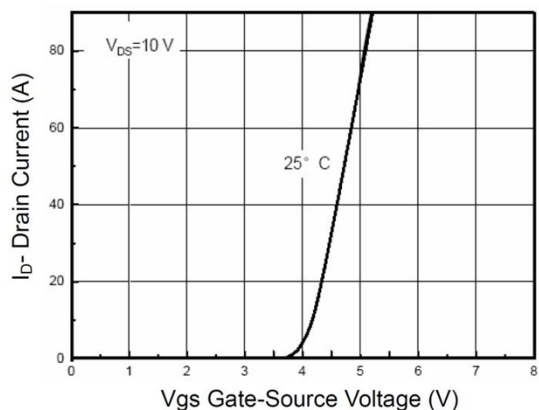


Figure 2 Transfer Characteristics

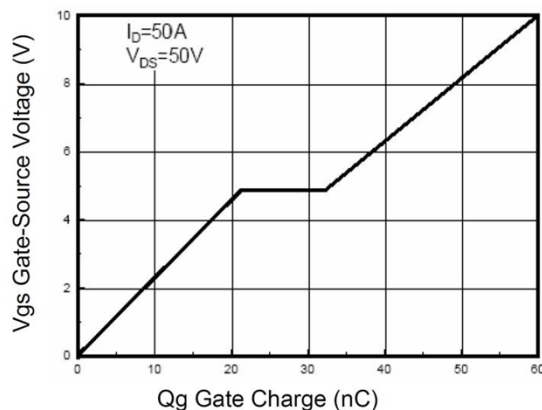


Figure 5 Gate Charge

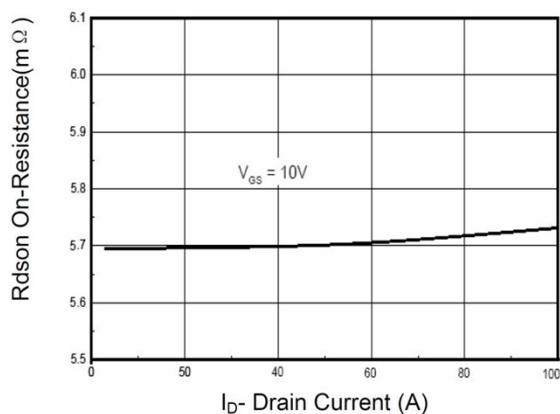


Figure 3 Rdson- Drain Current

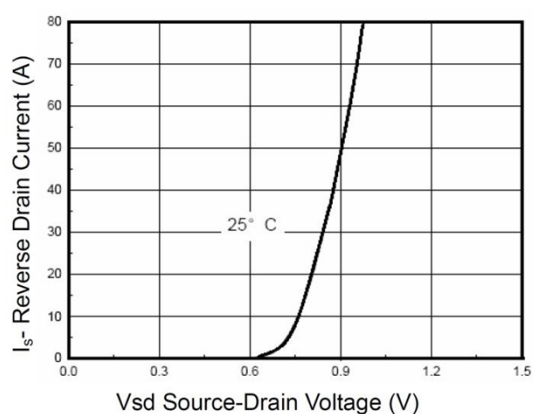


Figure 6 Source- Drain Diode Forward

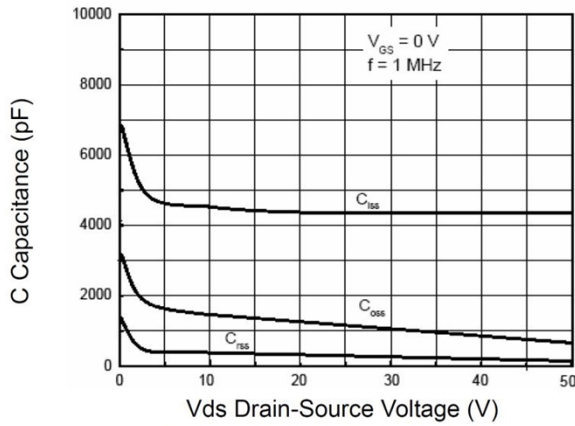


Figure 7 Capacitance vs Vds

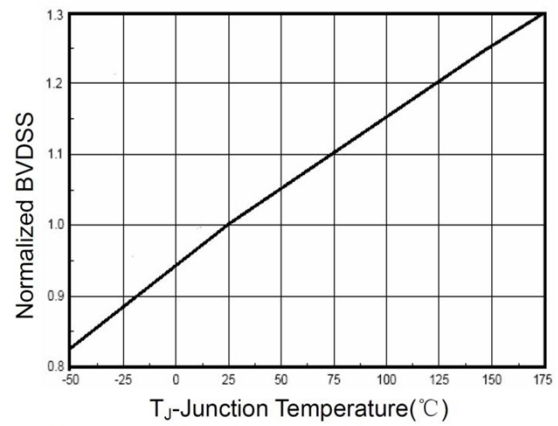


Figure 9  $BV_{DSS}$  vs Junction Temperature

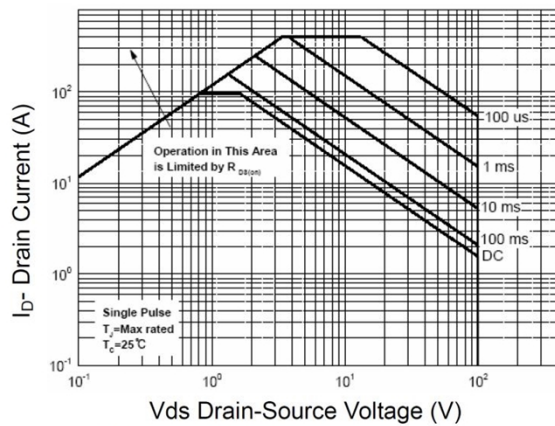


Figure 8 Safe Operation Area

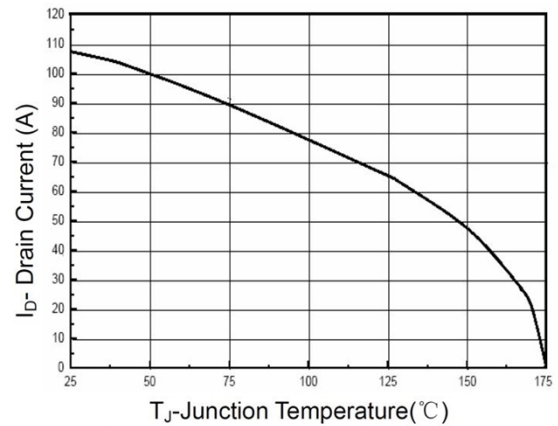


Figure 10 Current De-rating

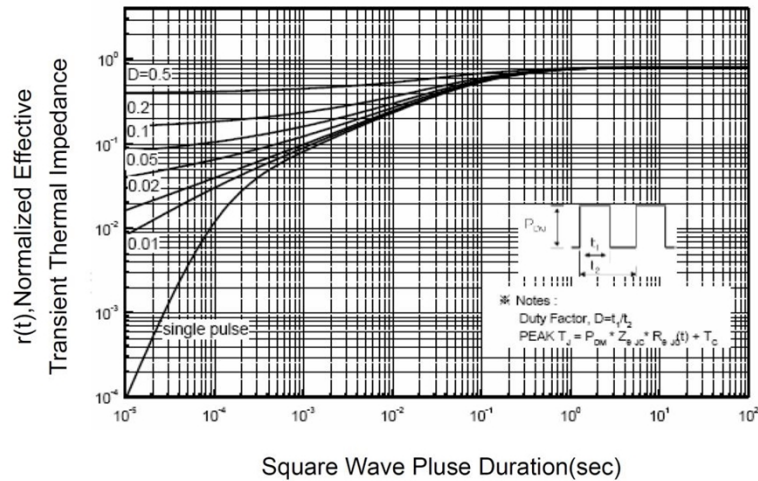
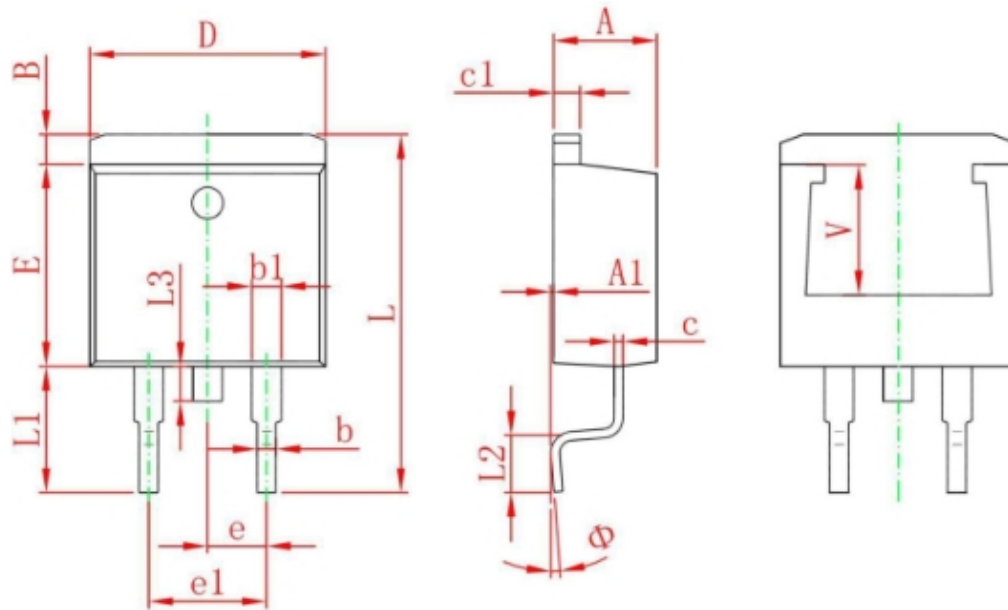


Figure 11 Normalized Maximum Transient Thermal Impedance

## TO-263 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	