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**Product Summary**

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	1.6m $\Omega$ @10V	290A

**Feature**

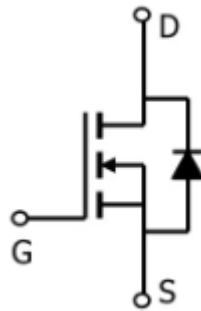
- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

**Application**

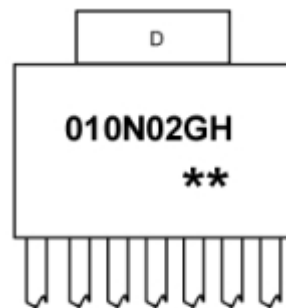
- Power switching application
- DC-DC Converter
- Power Management

**Package****TO-263-7L**

## Circuit diagram



## Marking



**010N02GH** : 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 (T <sub>C</sub> =25°C)	I <sub>D</sub>	290	A
Pulsed Drain Current	I <sub>DM</sub>	1160	A
Power dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	310	W
Single Pulse Avalanche Energy <sup>1</sup>	E <sub>AS</sub>	550	mJ
Thermal Resistance Junction-Case	R <sub>θJC</sub>	0.4	°C/ W
Operation and storage temperature	T <sub>STG</sub> , T <sub>J</sub>	-55~ +150	°C

## Electrical characteristics

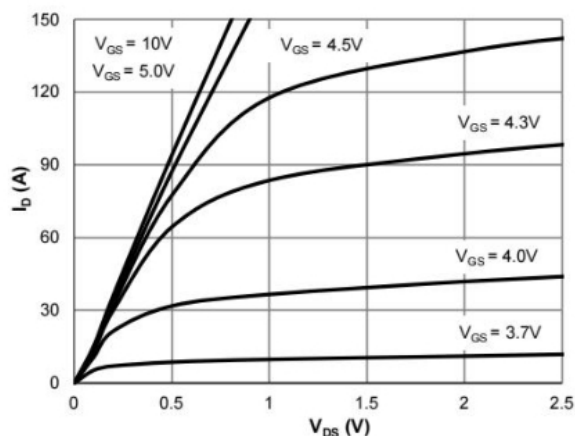
( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	100			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =80V,V <sub>GS</sub> = 0V			1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±0.1	uA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2	2.7	4	V
Drain-Source on-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A		1.6	2	Ω
Dynamic characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V,V <sub>GS</sub> =0V, f=1MHz		9625		pF
Output Capacitance	C <sub>Oss</sub>			1608		
Reverse Transfer Capacitance	C <sub>rss</sub>			75		
Switching Characteristics						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =20A		160		nC
Gate-Source Charge	Q <sub>gs</sub>			31		
Gate-Drain Charge	Q <sub>gd</sub>			37		
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, R <sub>L</sub> =2.5Ω, R <sub>G</sub> =6.0Ω		35		nS
Rise Time	T <sub>r</sub>			68		
Turn-Off Delay Time	T <sub>d(off)</sub>			150		
Fall Time	T <sub>f</sub>			105		
Diode Characteristics						
Diode Forward Voltage2	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A			1.2	V

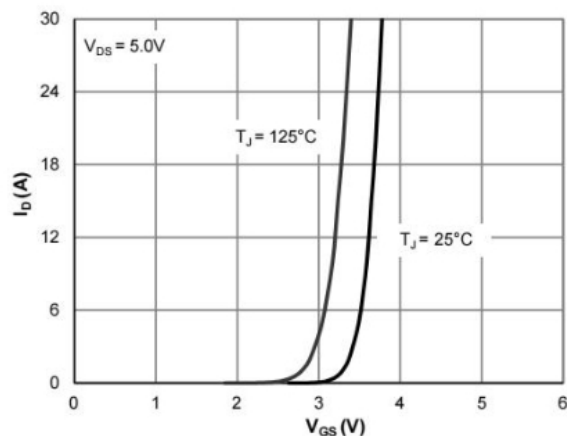
### Notes:

1. E AS is tested at starting  $T_j = 25^{\circ}\text{C}$ ,  $V_{DD} = 50V, V_{GS} = 10V, L = 0.1mH, R_g = 25 m\Omega$ ;

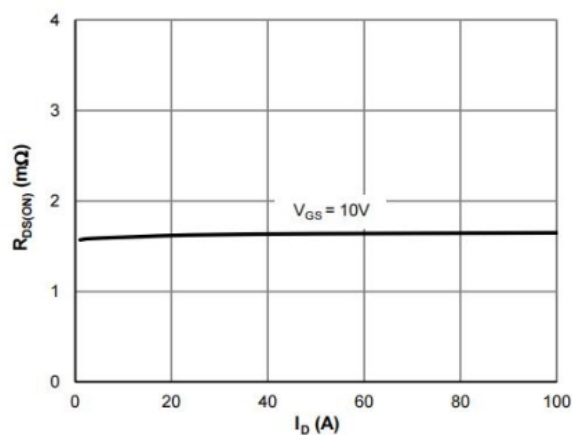
## Typical Characteristics



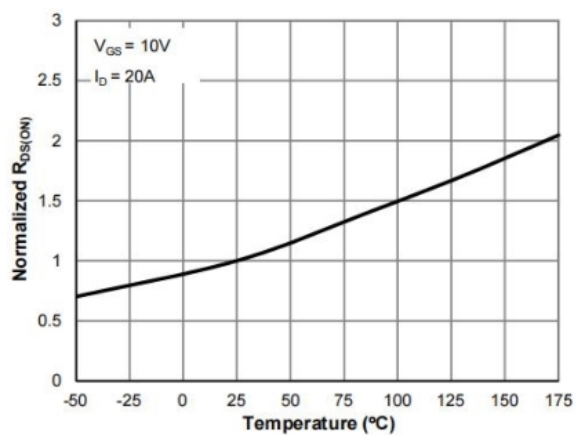
Typical Output Characteristics



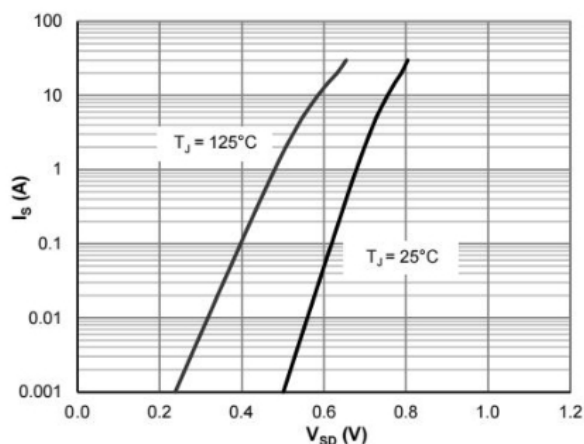
Transfer Characteristics



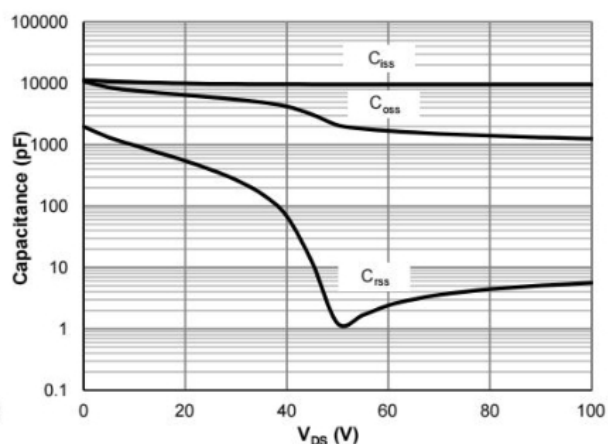
On-Resistance vs. Drain Current



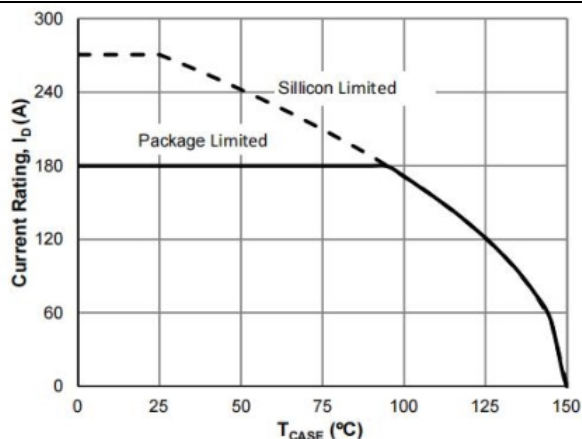
On-Resistance vs. Junction Temperature



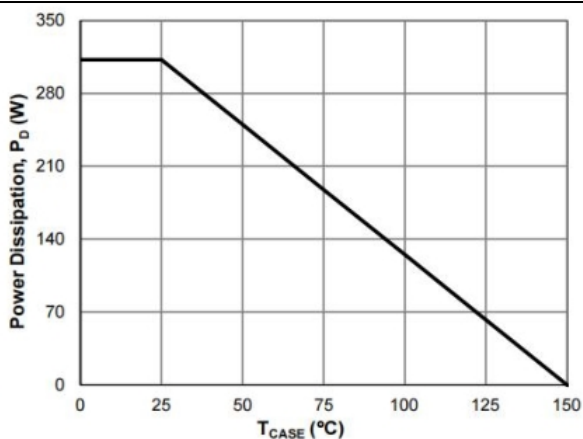
Body-Diode Characteristics



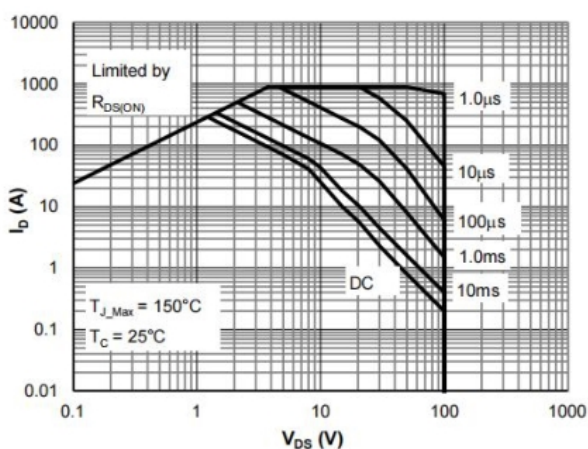
Capacitance Characteristics



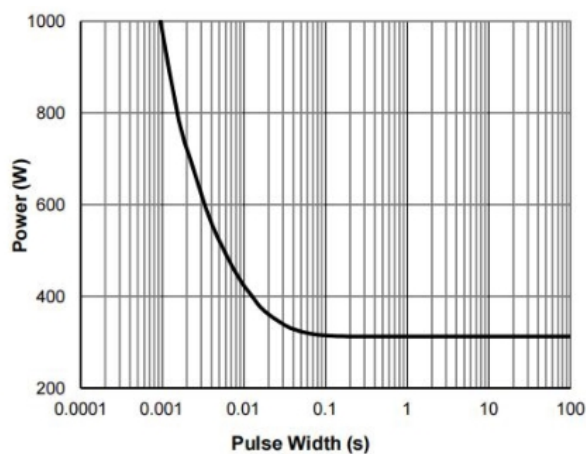
Current De-rating



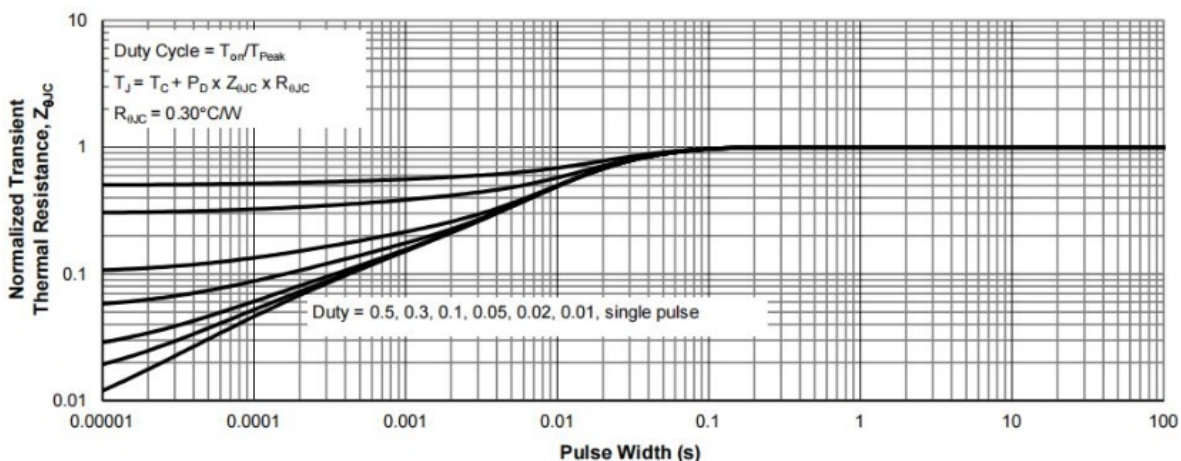
Power De-rating



Maximum Safe Operating Area

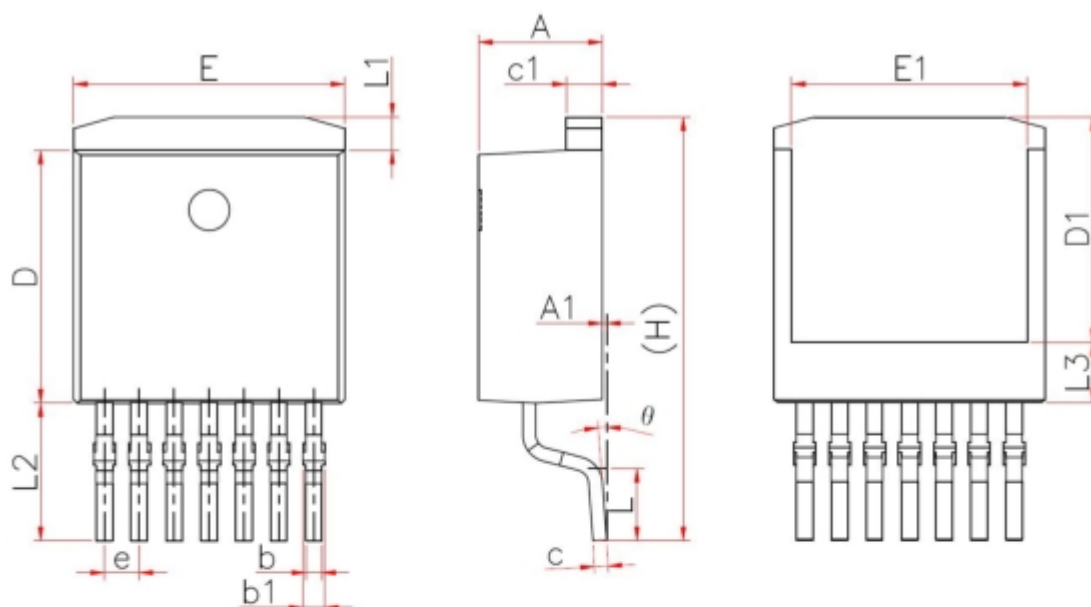


Single Pulse Power Rating, Junction-to-Case



Normalized Maximum Transient Thermal Impedance

## TO-263-7L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.500	0.169	0.177
A1	—	0.200	—	0.008
b	0.500	0.700	0.020	0.028
b1	0.500	1.000	0.020	0.039
c	0.400	0.600	0.016	0.024
c1	1.170	1.370	0.046	0.054
D	9.050	9.450	0.356	0.372
D1	7.300	7.500	0.287	0.295
E	9.800	10.200	0.386	0.402
E1	8.400	8.600	0.331	0.339
e	1.270 REF.		0.050 REF.	
H	15.000 REF.		0.591 REF.	
L	2.440	2.840	0.096	0.112
L1	0.700	1.300	0.028	0.051
L2	4.200	5.200	0.165	0.205
L3	2.800	3.000	0.110	0.118
θ	0°	8°	0°	8°