

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	8.5mΩ@10V	65A
	11mΩ@4.5V	



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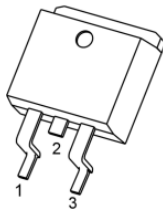
### Feature

- Fast Switching
- Low Gate Charge and Rds on
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

### Applications

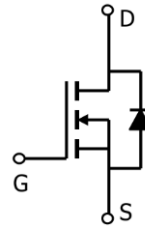
- Power switching application
- PWM Application
- DC-DC Converter

### Package

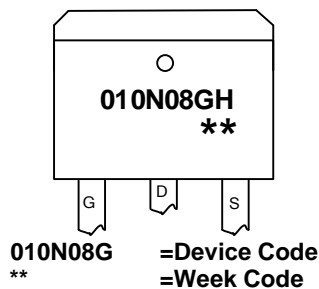


TO-263(1:G 2:D 3:S)

### Circuit diagram



### Marking



### Order Information

Device	Package	Unite/Tape
SP010N08GTD	TO-263-3L	800

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (Tc=25°C)	$I_D$	65	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	260	A
Single Pulse Avalanche Energy <sup>3</sup>	$E_{AS}$	156	mJ
Total Power Dissipation <sup>4</sup> (Tc=25°C)	$P_D$	90	W
Thermal Resistance Junction-Case <sup>1</sup>	$R_{\theta JC}$	1.38	°C/W
Storage Temperature Range	$T_{STG}$	-55 to 150	°C
Operating Junction Temperature Range	$T_J$	-55 to 150	°C

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

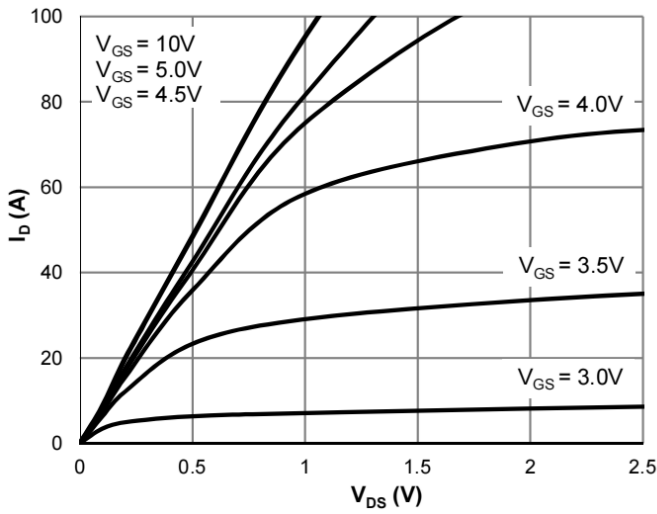
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	---	---	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	1.9	2.5	V
Static Drain-Source On-Resistance <sup>2</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	---	8.5	12	m $\Omega$
		$V_{GS}=4.5V, I_D=15A$	---	11	15	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V, f=1MHz$	---	1635	---	pF
Output Capacitance	$C_{oss}$		---	339	---	
Reverse Transfer Capacitance	$C_{rss}$		---	22	---	
<b>Switching Characteristics</b>						
Total Gate Charge (4.5V)	$Q_g$	$V_{DS}=50V, V_{GS}=10V, I_D=20A$	---	14	---	nC
Gate-Source Charge	$Q_{gs}$		---	5	---	
Gate-Drain Charge	$Q_{gd}$		---	7	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=50V, V_{GS}=10V, R_L=2.5\Omega, R_G=6\Omega$	---	8	---	ns
Rise Time	$T_r$		---	16	---	
Turn-Off Delay Time	$T_{d(off)}$		---	31	---	
Fall Time	$T_f$		---	27	---	
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1.2	V

Note :

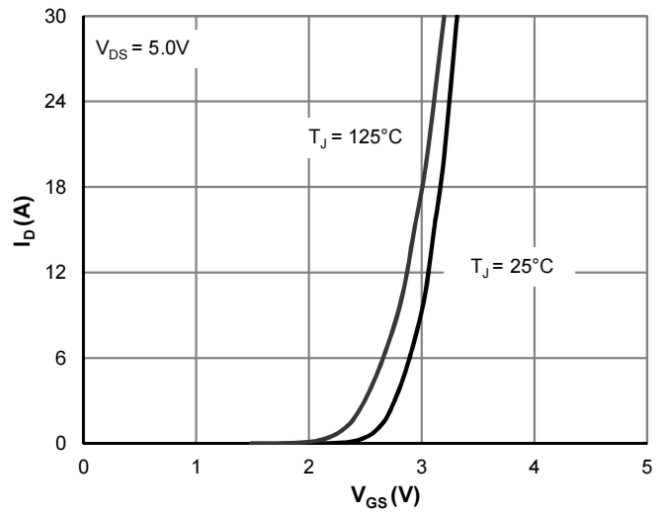
- The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- The data tested by pulsed, pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$
- The EAS data shows Max. rating. The test condition is  $V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25\Omega$
- The power dissipation is limited by 150°C junction temperature



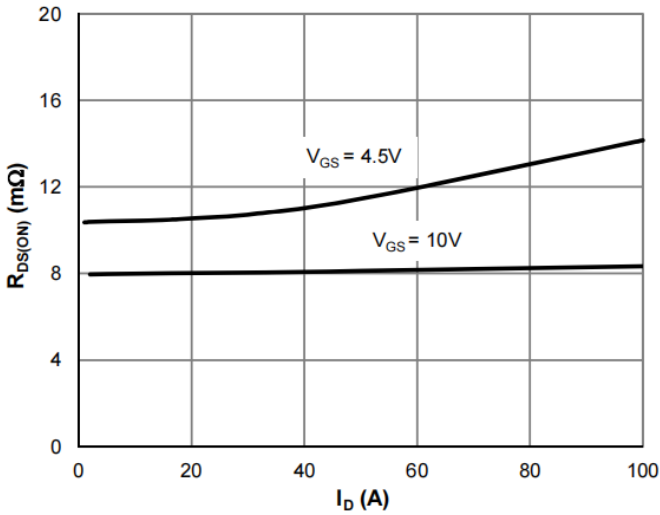
Typical Characteristics



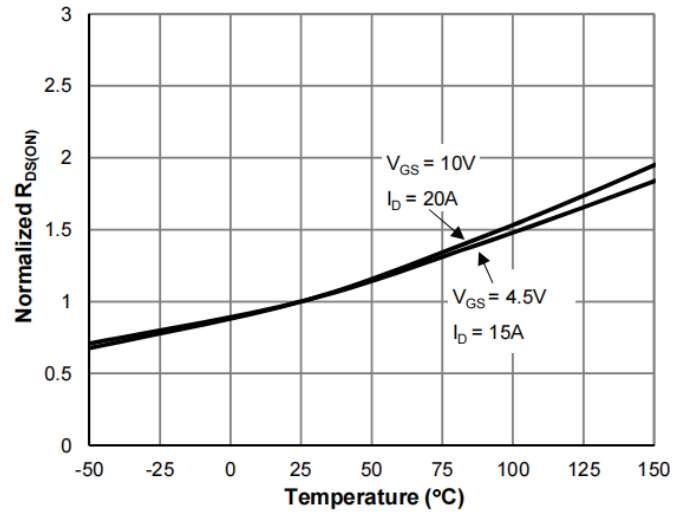
Typical Output Characteristics



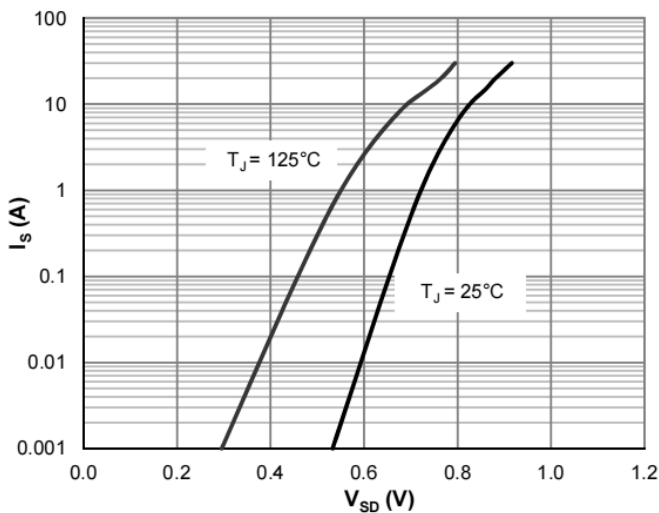
Transfer Characteristics



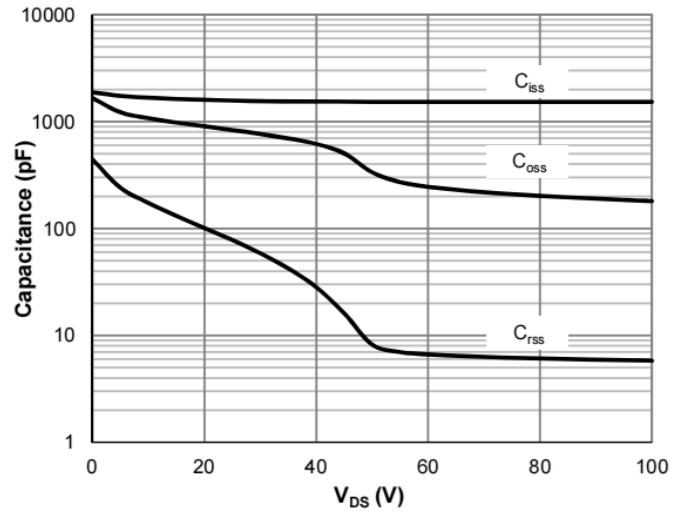
On-Resistance vs. Drain Current



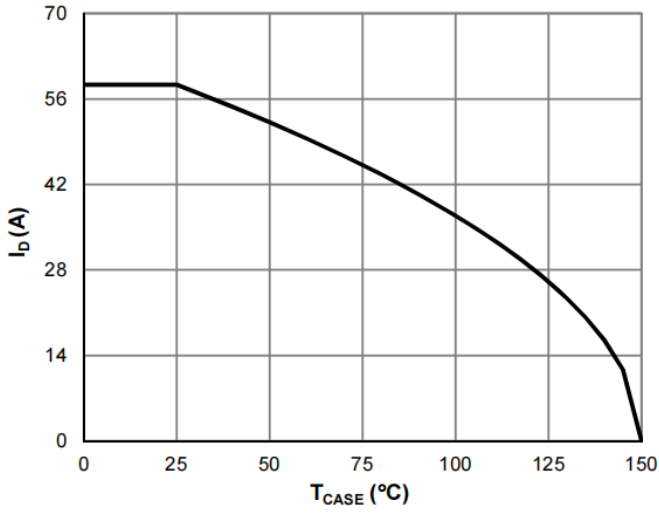
On-Resistance vs. Junction Temperature



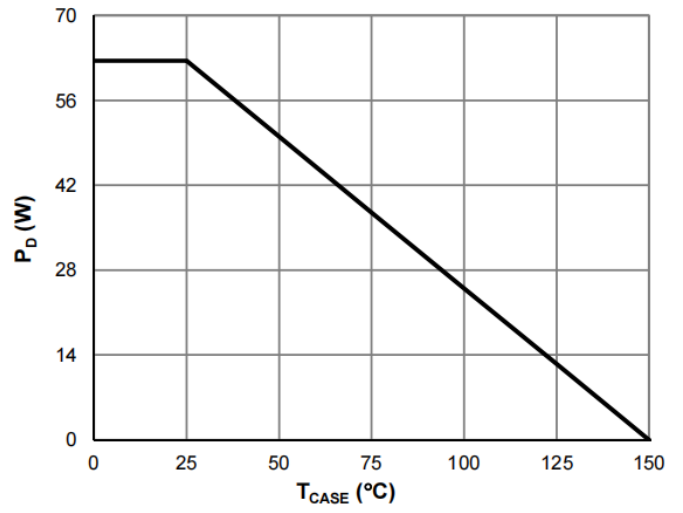
Body-Diode Characteristics



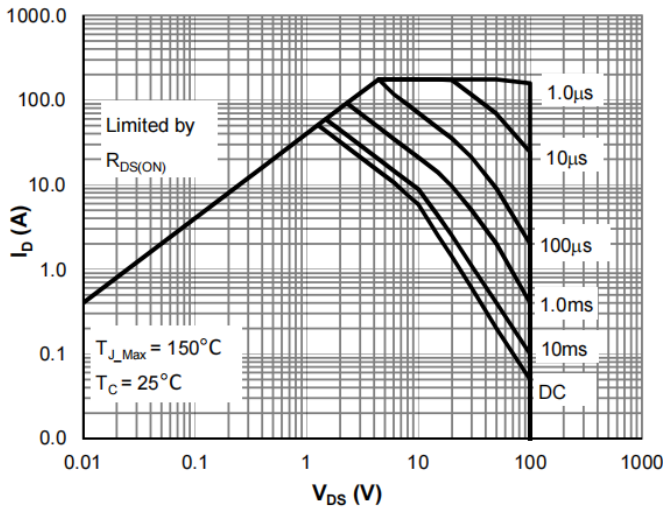
Capacitance Characteristics



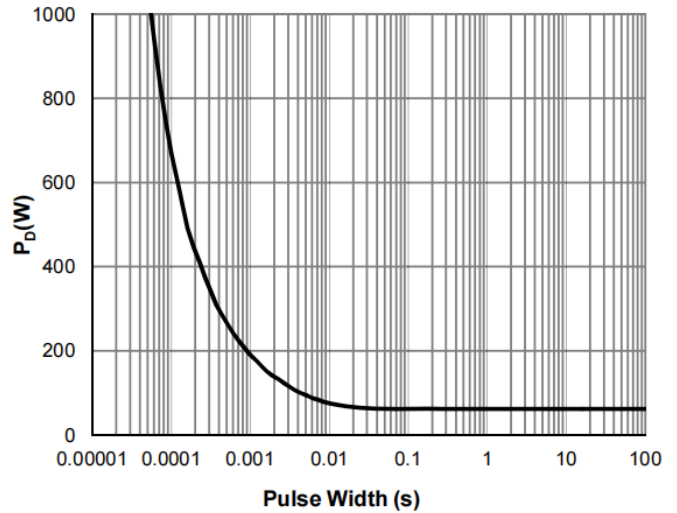
Current De-rating



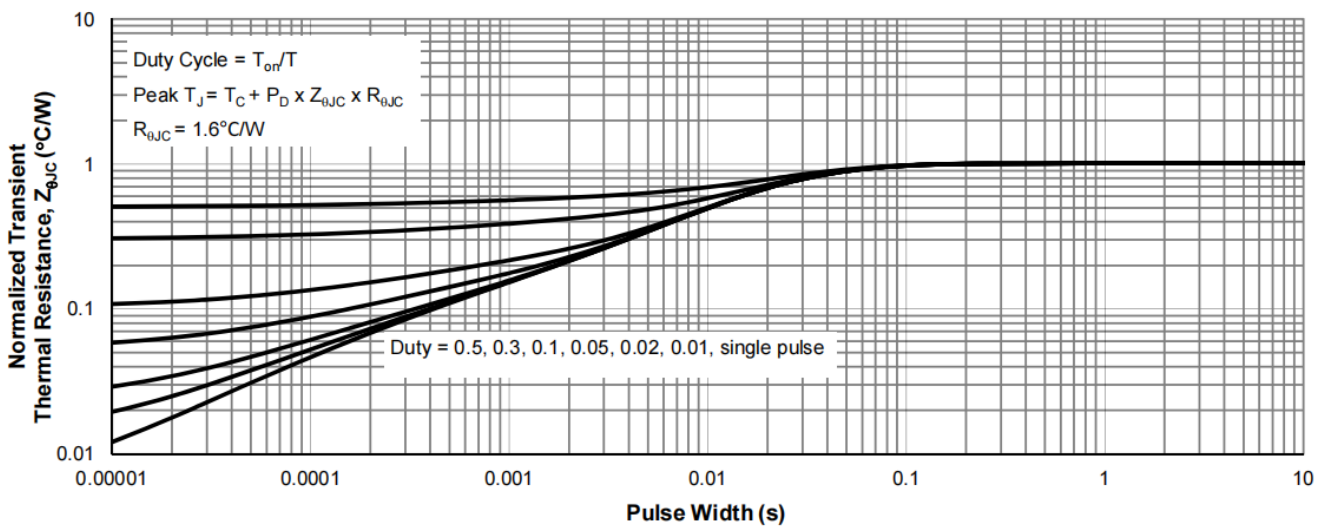
Power De-rating



Maximum Safe Operating Area



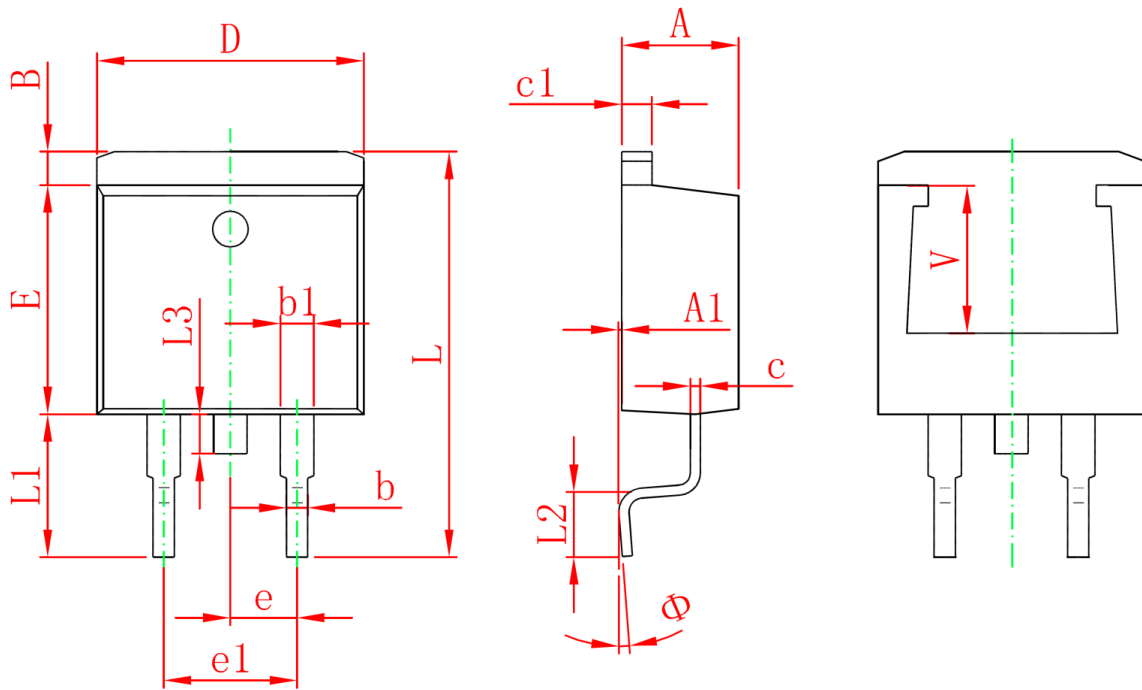
Single Pulse Power Rating, Junction-to-Case



Normalized Maximum Transient Thermal Impedance



TO-263 Package Outline Dimensions



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
$\phi$	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	

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