SP010N08GTD

100V N-Channel Power MOSFET

Product Summary

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

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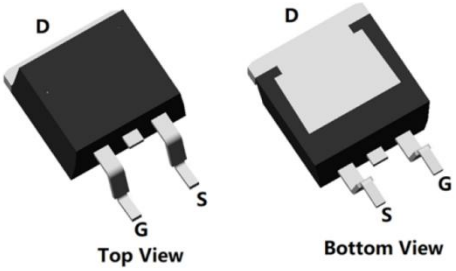
Feature

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

Applications

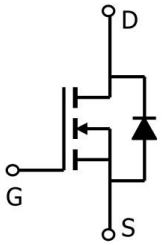
- Power switching application
- Battery management
- Uninterruptible power supply

Package

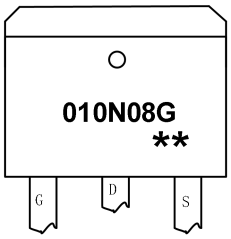


TO-263(1:G 2:D 3:S)

Circuit diagram



Marking



010N08G : Product code
**** : Week code**

Order Information

Device	Package	Unit/Tape
SP010N08GTD	TO-263	800

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	65	A
Continuous Drain Current (Tc=100℃)	I_D	45	A
Pulsed Drain Current	I_{DM}	260	A
Single Pulse Avalanche Energy[1]	E_{AS}	156	mJ
Power Dissipation (Tc=25℃)	P_D	110	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.14	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

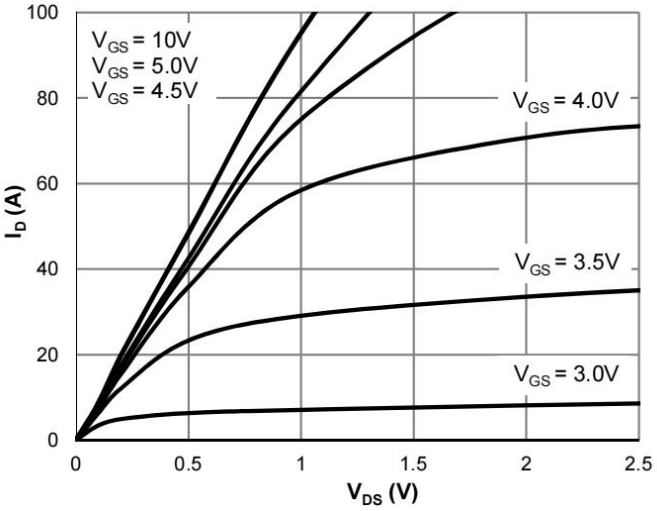
Electrical characteristics (Ta=25℃, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250μA, V_{GS} = 0V	100	-	-	V
Drain Cut-Off Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V	-	-	1	uA
Gate Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.2	1.9	2.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 20A	-	8.5	12	mΩ
		V_{GS} = 4.5V, I_D = 15A	-	11	15	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} = 0V, f = 1.0MHz	-	1955	-	pF
Output Capacitance	C_{oss}		-	607	-	
Reverse Transfer Capacitance	C_{rss}		-	31	-	
Total Gate Charge	Q_g	V_{DS}=50V , VGS=10V , ID=50A	-	16.7	-	nC
Gate-Source Charge	Q_{gs}		-	6	-	
Gate-Drain Charge	Q_{gd}		-	8	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 10V, V_{DS} =50V, ID=50A R_G = 4.7Ω	-	9.5	-	nS
Rise Time	t_r		-	19	-	
Turn-Off Delay Time	$t_{d(off)}$		-	37	-	
Fall Time	t_f		-	32	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	65	A
Reverse Recovery Time	Trr	I_S=20A, di/dt=100A/us, T_J=25℃	-	49	-	nS
Reverse Recovery Charge	Qrr		-	78	-	nC

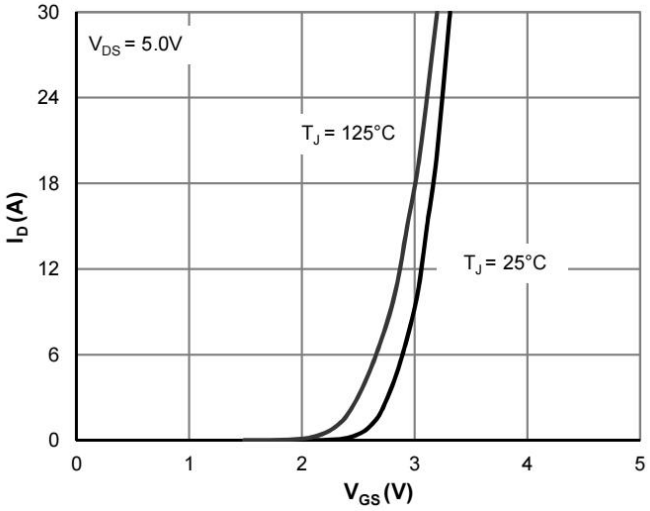
Note：

1. The EAS test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω

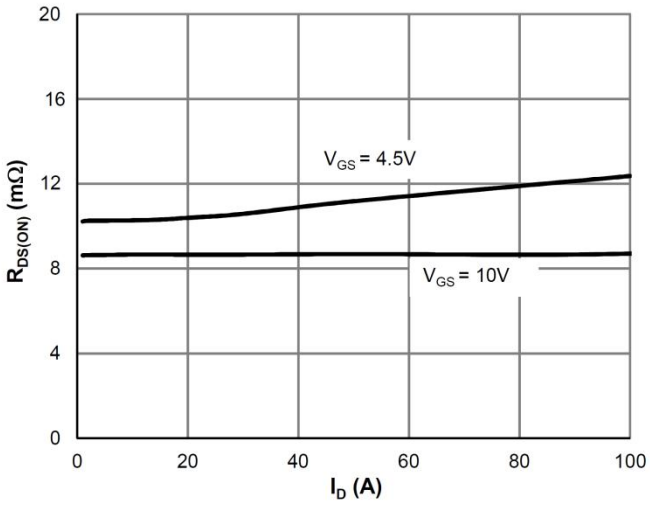
Typical Characteristics



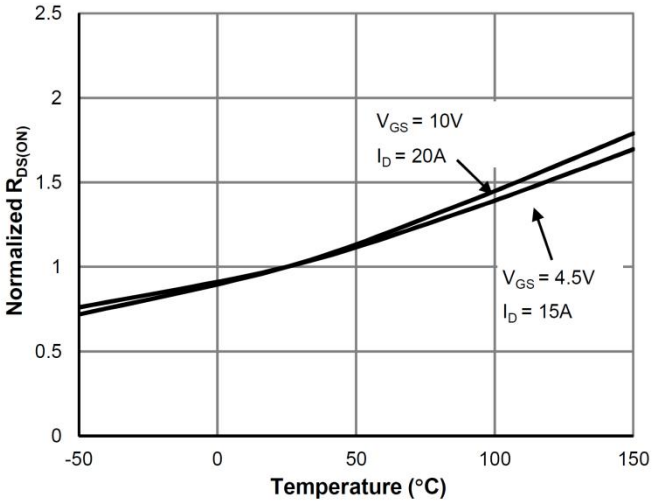
Typical Output Characteristics



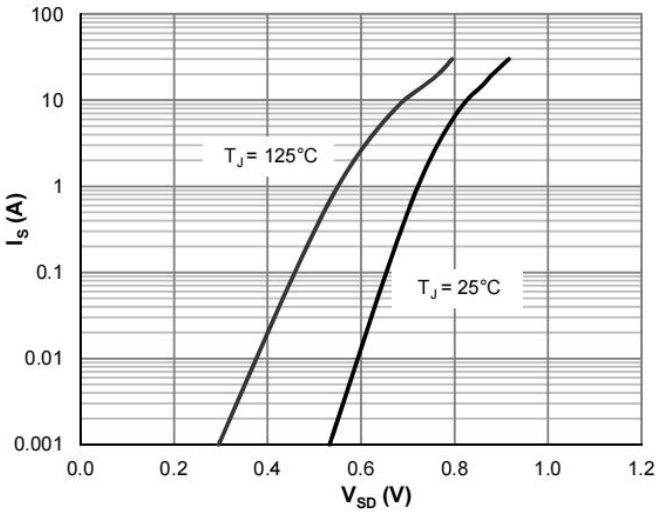
Transfer Characteristics



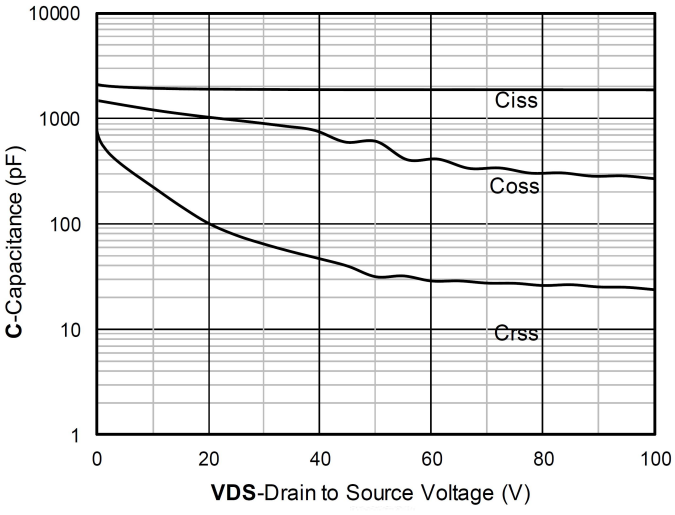
On-Resistance vs.Drain Current



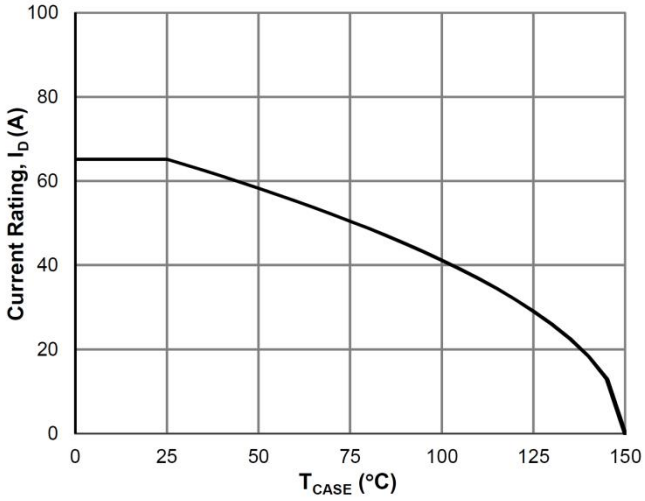
On-Resistance vs.Junction Temperature



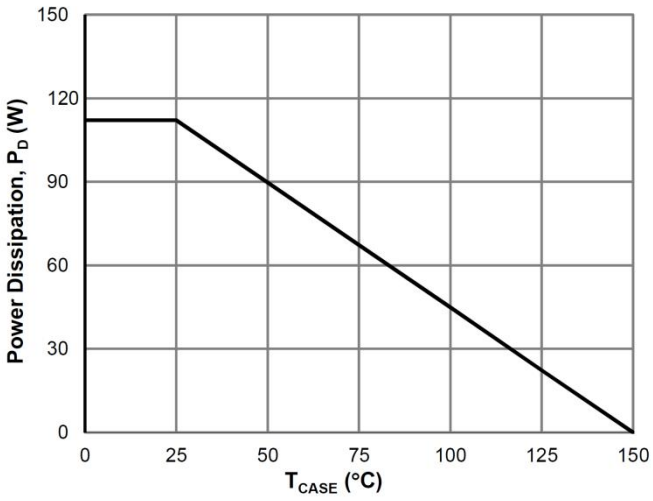
Body-Diode Characteristics



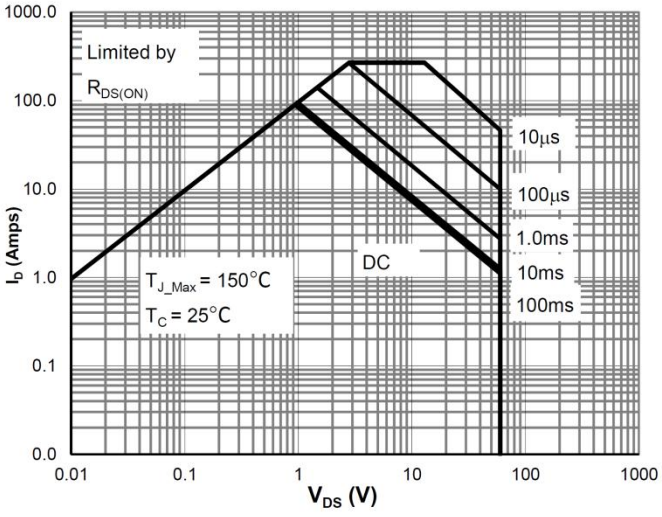
Capacitance Characteristics



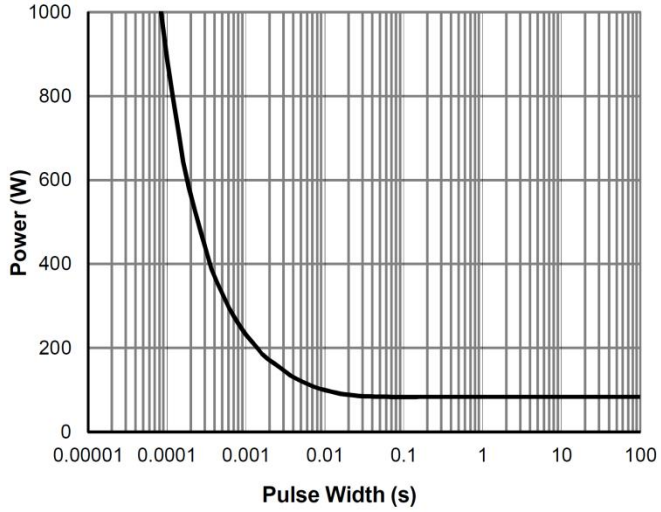
Current De-rating



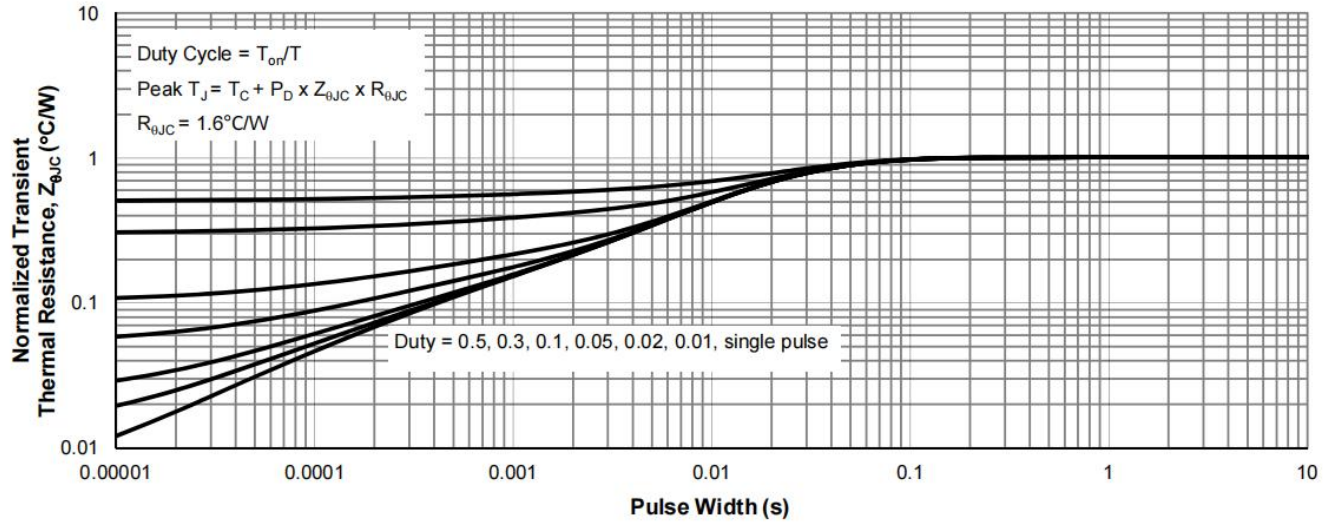
Power De-rating



Maximum Safe Operating Area

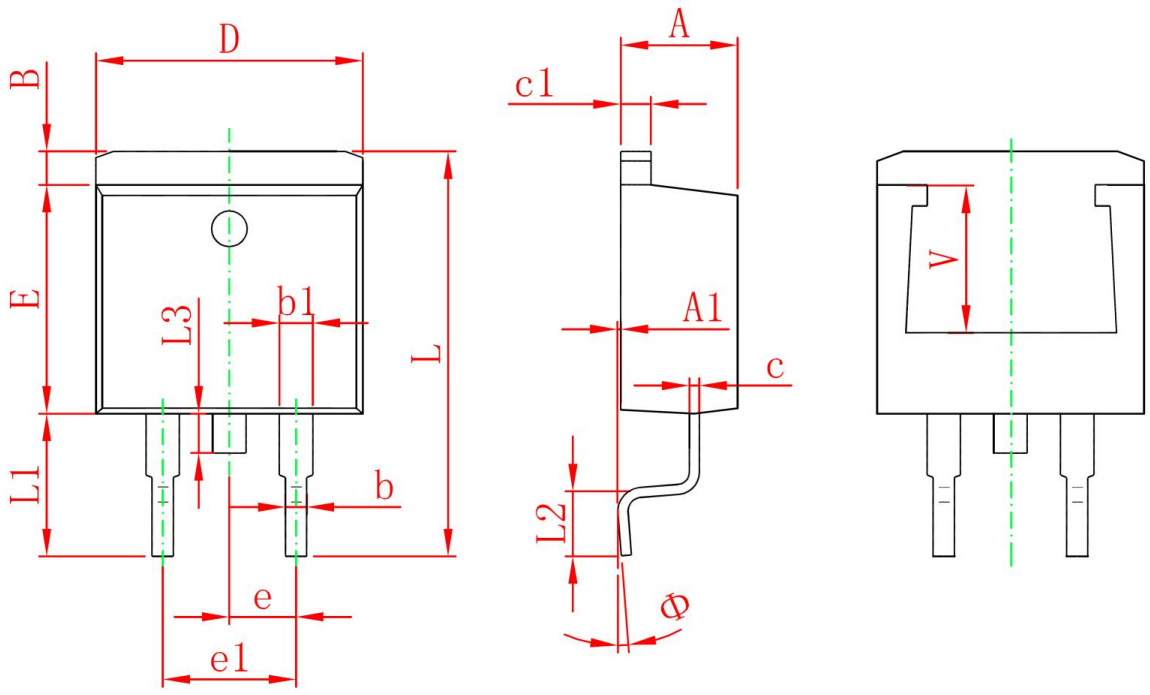


Single Pulse Power Rating,Junction-to-Case



Normalized Maximum Transient Thermal Impedance

TO-263 Package 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.	