

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-150V	85mΩ@-10V	-35A
	94mΩ@-4.5V	



**合肥矽普半导体**

Siliup Semiconductor Technology Co., Ltd

技术 品质 服务

www.siliup.com

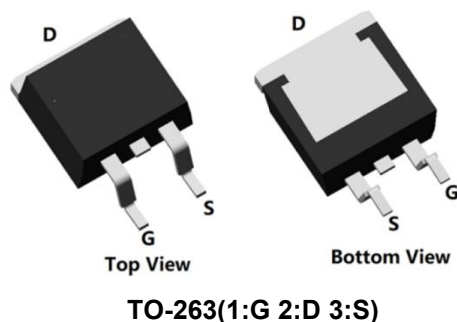
## Feature

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

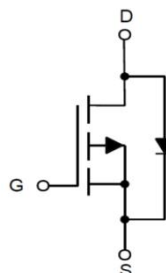
## Applications

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

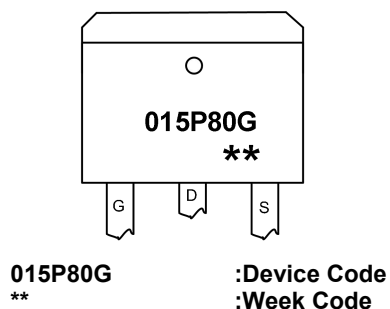
## Package



## Circuit diagram



## Marking



## Order Information

Device	Package	Unit/Tape
SP015P80GTD	TO-263	800

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	-150	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (Tc=25°C)	$I_D$	-35	A
Continuous Drain Current (Tc=100°C)	$I_D$	-23	A
Pulsed Drain Current	$I_{DM}$	-140	A
Single Pulse Avalanche Energy <sup>1</sup>	$E_{AS}$	400	mJ
Power Dissipation (Tc=25°C)	$P_D$	155	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.81	°C/W
Storage Temperature Range	$T_{STG}$	-55 to 150	°C
Operating Junction Temperature Range	$T_J$	-55 to 150	°C

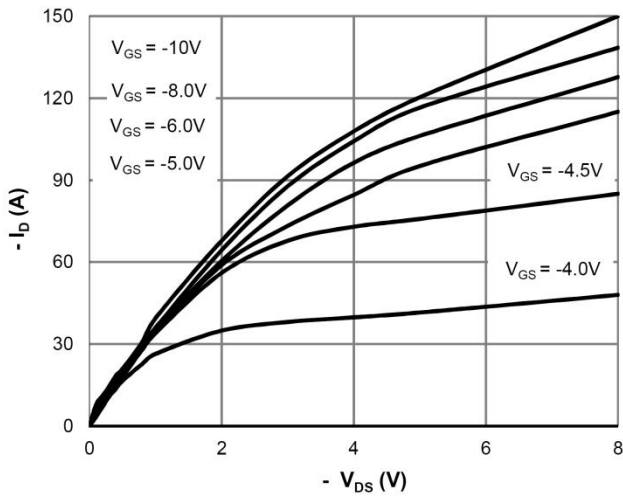
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	VGS=0V , ID= -250uA	-150	-	-	V
Drain Cut-Off Current	I <sub>DSS</sub>	VDS= -120V , VGS=0V	-	-	-1	μA
Gate Leakage Current	I <sub>GSS</sub>	VGS= ± 20V , VDS=0V	-	-	± 100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	VGS=VDS , ID = -250uA	-1	-1.9	-2.5	V
Drain-Source ON Resistance	R <sub>DS(ON)</sub>	VGS= -10V , ID= -30A	-	85	106	mΩ
	R <sub>DS(ON)</sub>	VGS= -4.5V , ID= -20A	-	94	125	
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	VDS= -75V,VGS=0V,f=1MHZ	-	3275	-	pF
Output Capacitance	C <sub>oss</sub>		-	137	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	14	-	
Total Gate Charge	Q <sub>g</sub>	VDS= -75V , VGS= -10V , ID= -15A	-	92	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	9	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	19	-	
Switching Characteristics						
Turn-On Delay Time	t <sub>d(on)</sub>	VDD= -75V, VGS=-10V , RG=1.6Ω, ID= -15A	-	68	-	nS
Rise Time	t <sub>r</sub>		-	18	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	70	-	
Fall Time	t <sub>f</sub>		-	35	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -1A, VGS = 0V	-	-	-1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>		-	-	-35	A
Reverse Recovery Time	T <sub>rr</sub>	I <sub>S</sub> = -15A, di/dt=100A/us, T <sub>J</sub> =25℃	-	350	-	nS
Reverse Recovery Charge	Q <sub>rr</sub>		-	86	-	nC

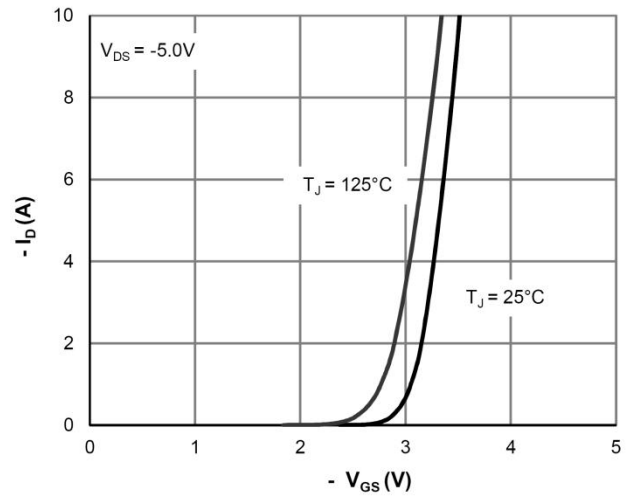
**Note :**

- The test condition is  $V_{DD} = -50V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$

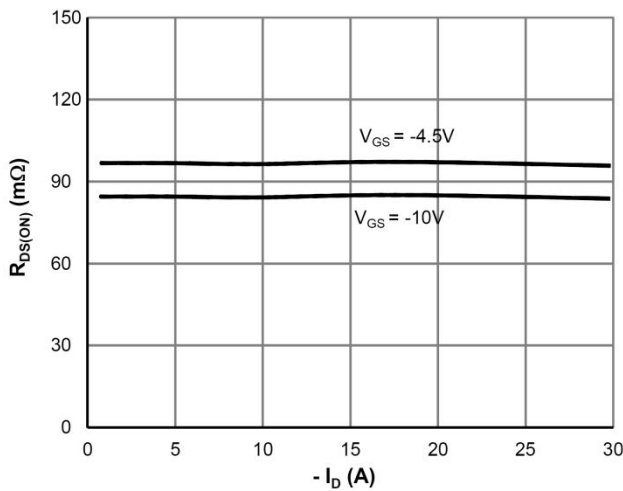
## Typical Characteristics



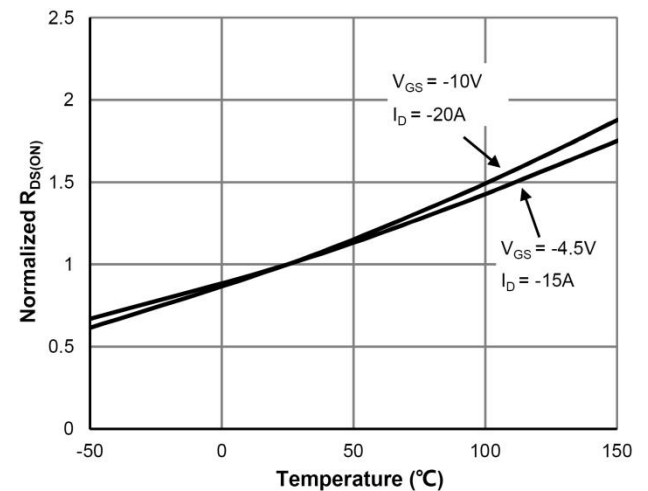
Saturation Characteristics



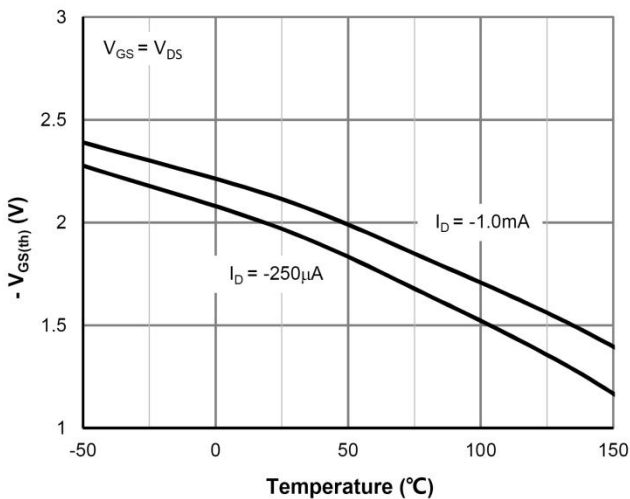
Transfer Characteristics



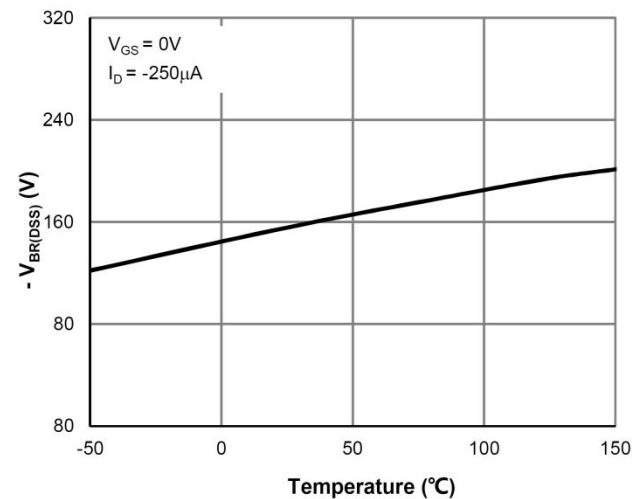
$R_{DS(ON)}$  vs. Drain Current



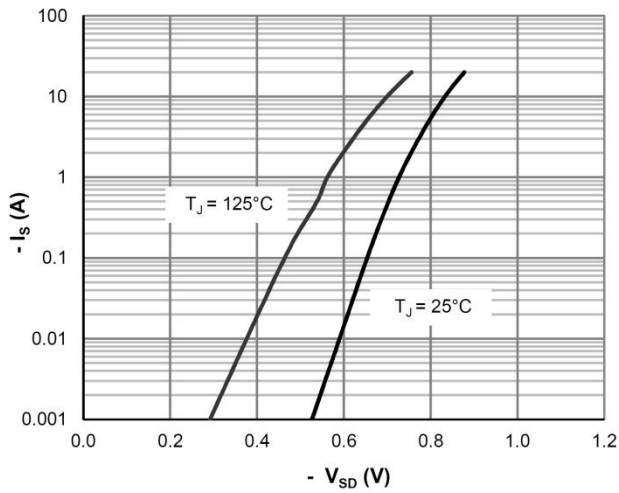
$R_{DS(ON)}$  vs. Junction Temperature



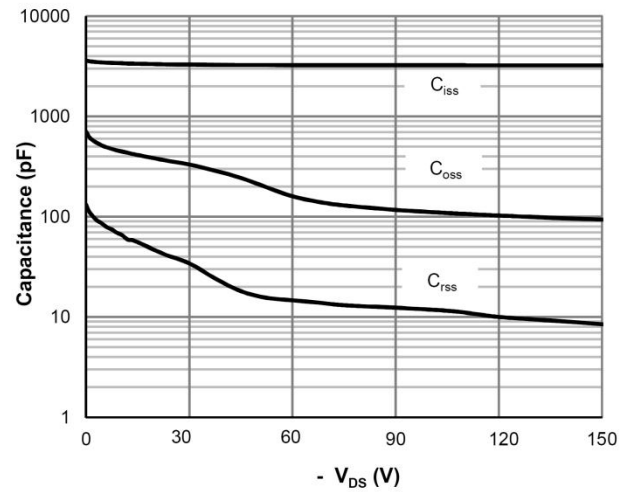
$V_{GS(th)}$  vs. Junction Temperature



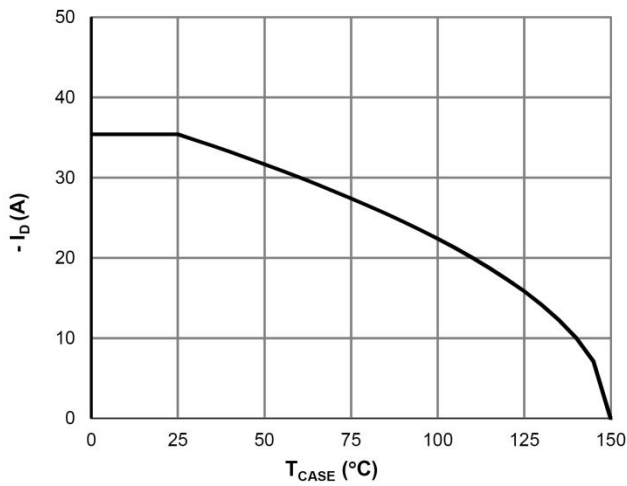
$V_{BR(DSS)}$  vs. Junction Temperature



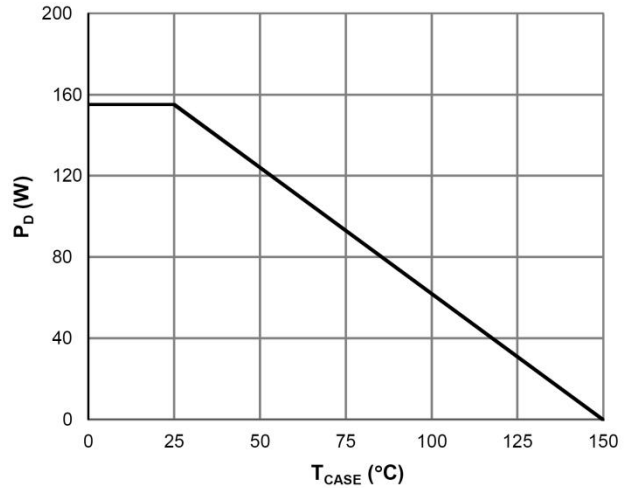
Body-Diode Characteristics



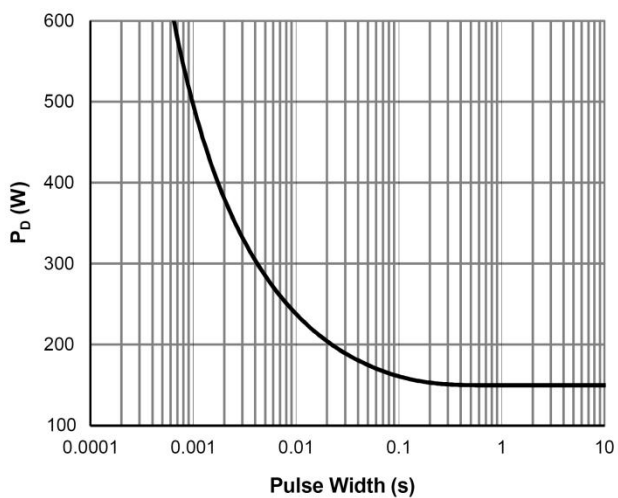
Capacitance Characteristics



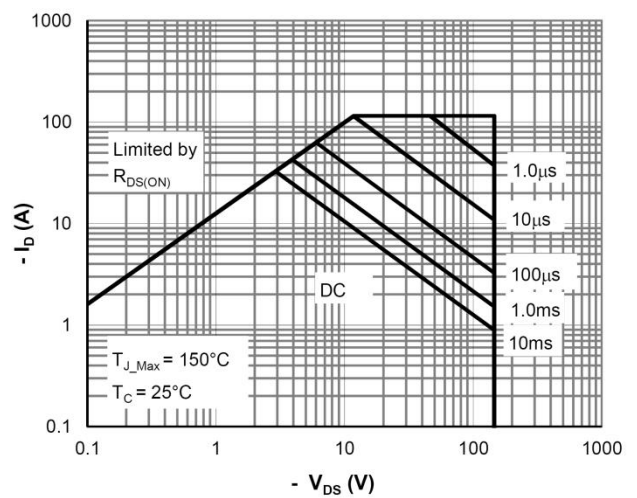
Current De-rating



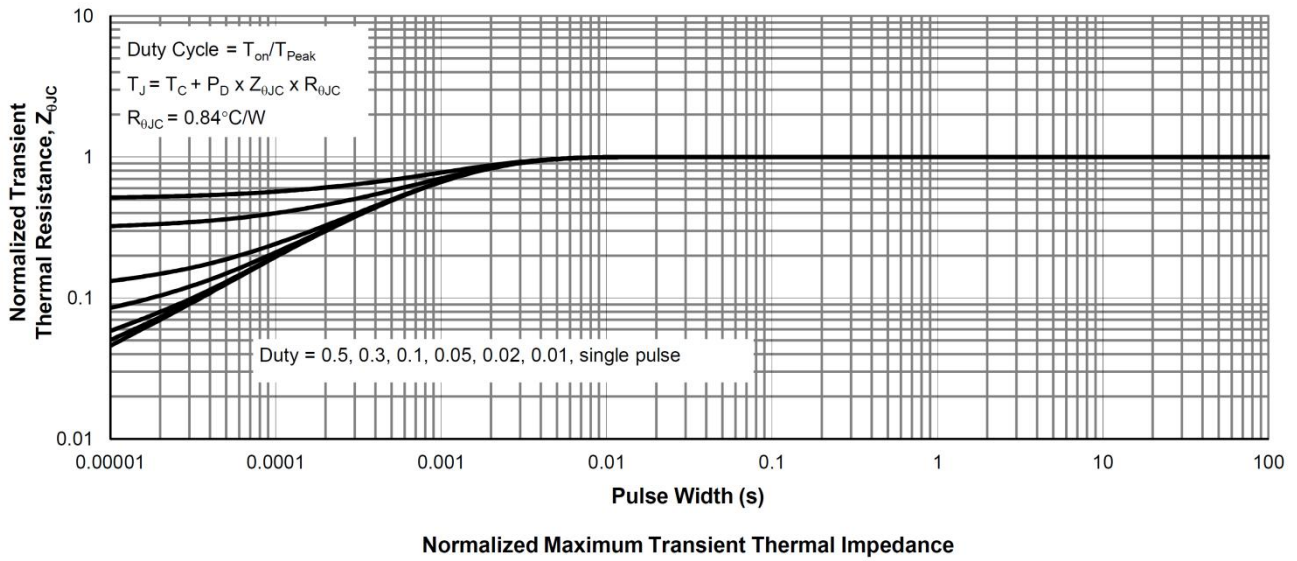
Power De-rating

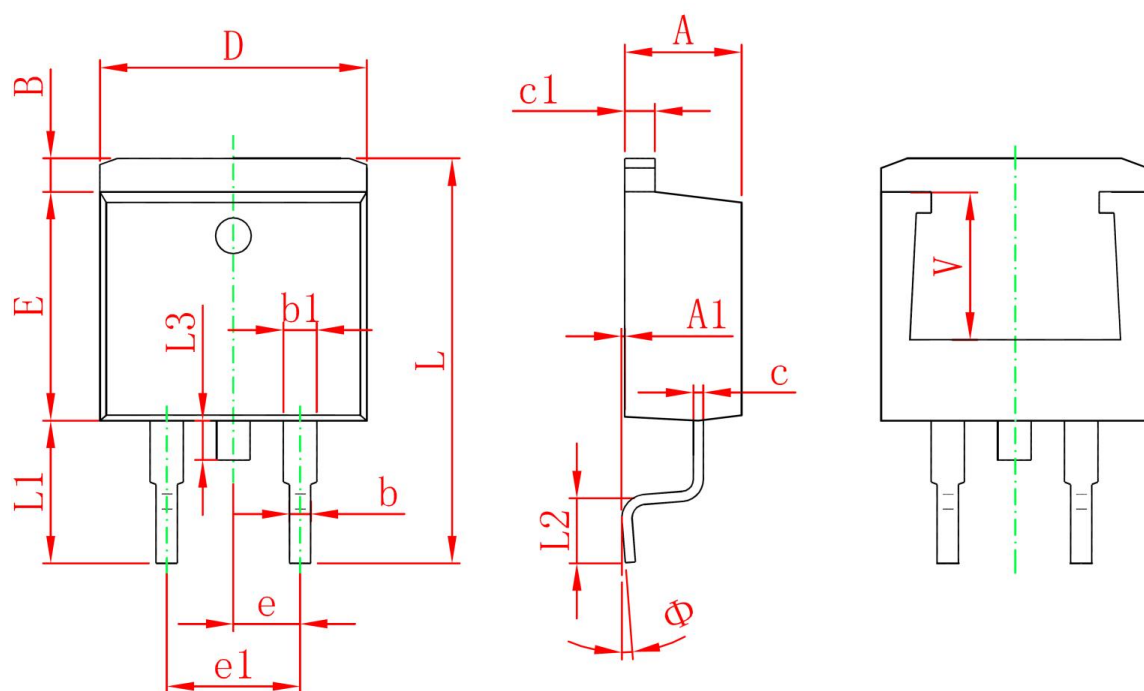


Single Pulse Power Rating, Junction-to-Case



Maximum Safe Operating Area



**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.	