

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-100V	16mΩ@-10V	-60A



**合肥矽普半导体**

Siliup Semiconductor Technology Co., Ltd

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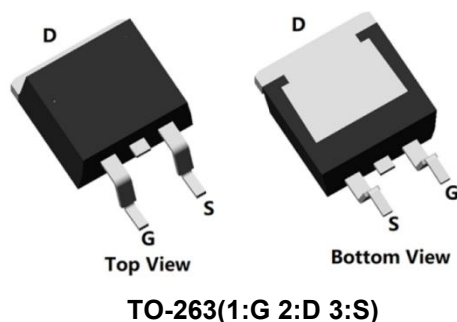
## Feature

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

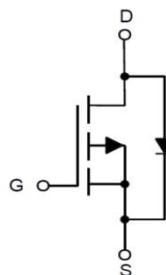
## Applications

- PWM Application
- Hard switched and high frequency circuits
- Power Management

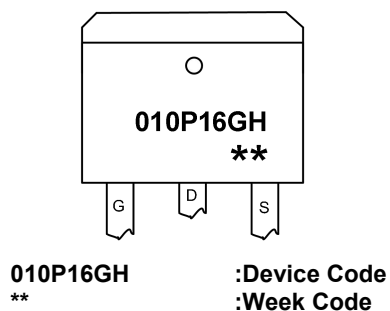
## Package



## Circuit diagram



## Marking



## Order Information

Device	Package	Unit/Tape
SP010P16GHTD	TO-263	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)	$I_D$	-60	A
Continuous Drain Current (Tc=100°C)	$I_D$	-40	A
Pulsed Drain Current	$I_{DM}$	-240	A
Single Pulse Avalanche Energy <sup>1</sup>	$E_{AS}$	625	mJ
Power Dissipation (Tc=25°C)	$P_D$	180	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.69	°C/W
Storage Temperature Range	$T_{STG}$	-55 to 150	°C
Operating Junction Temperature Range	$T_J$	-55 to 150	°C

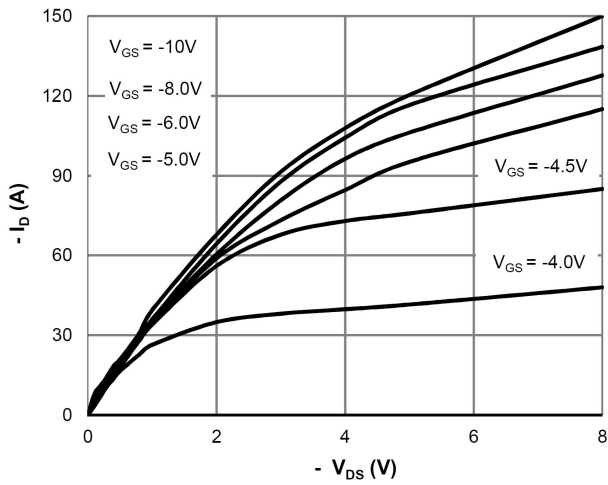
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	VGS=0V , ID= -250uA	-100	-	-	V
Drain-Source Leakage Current	IDSS	VDS=-80V , VGS=0V , TJ=25℃	-	-	-1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID = -250uA	-2	-3	-4	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=-10V , ID= -20A	-	16	20	mΩ
Dynamic characteristics						
Input Capacitance	Ciss	VDS=-50V , VGS=0V , f=1MHz	-	6825	-	pF
Output Capacitance	Coss		-	752	-	
Reverse Transfer Capacitance	Crss		-	296	-	
Total Gate Charge	Qg	VDS=-50V , VGS=10V , ID=-20A	-	98	-	nC
Gate-Source Charge	Qgs		-	26	-	
Gate-Drain Charge	Qgd		-	13	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=-50V , VGS=10V , RG=1.6Ω,ID=-20A	-	16	-	nS
Rise Time	Tr		-	58	-	
Turn-Off Delay Time	Td(off)		-	145	-	
Fall Time	Tf		-	56	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , Is=-1A , TJ=25℃	-	-	-1.2	V
Maximum Body-Diode Continuous Current	Is		-	-	-60	A
Reverse Recovery Time	Trr	Is=-20A, di/dt=100A/us, TJ=25℃	-	96	-	nS
Reverse Recovery Charge	Qrr		-	205	-	nC

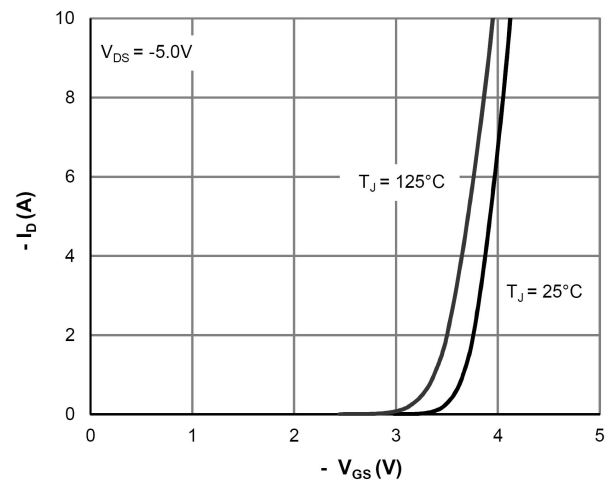
**Note :**

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

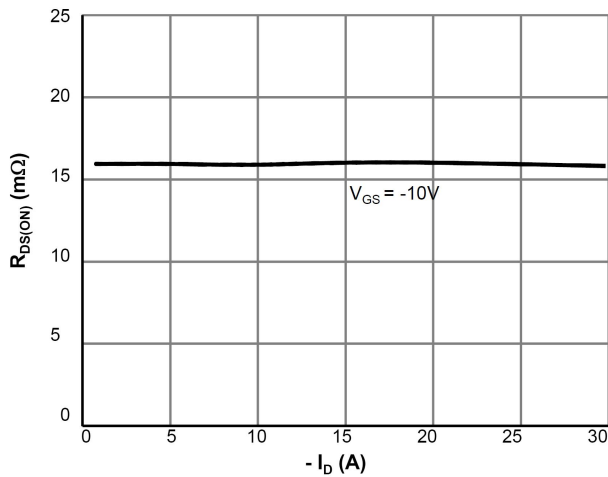
## Typical Characteristics



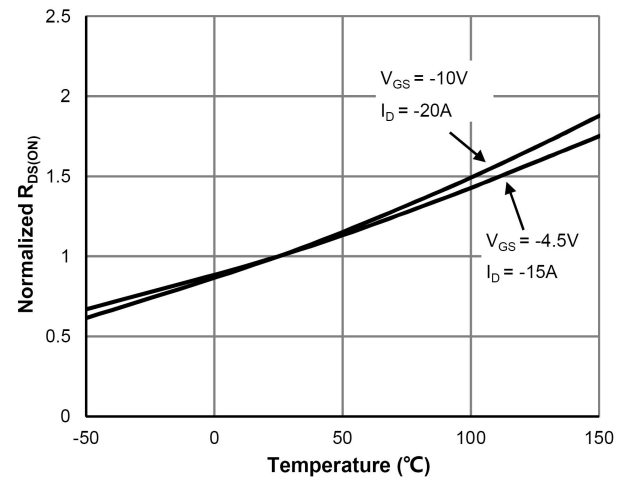
Saturation Characteristics



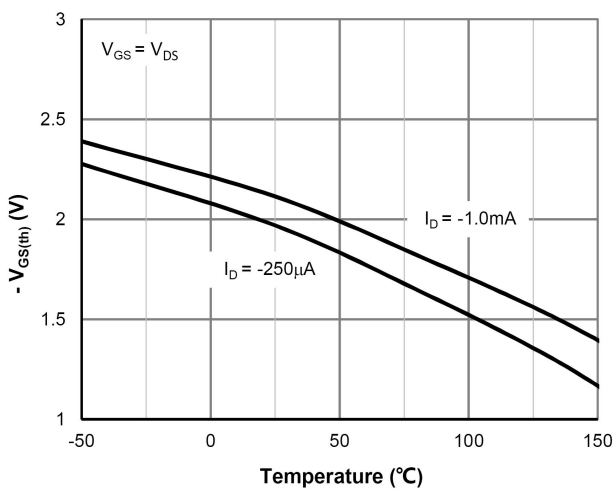
Transfer Characteristics



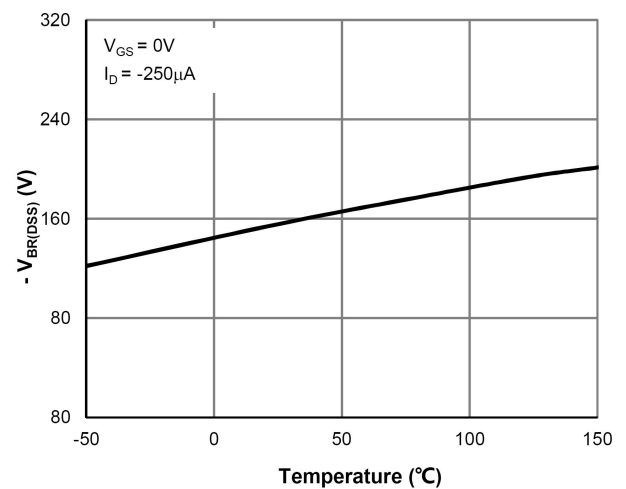
$R_{DS(ON)}$  vs. Drain Current



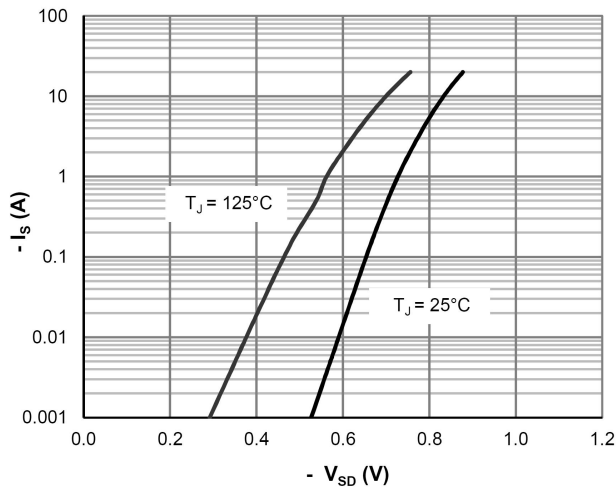
$R_{DS(ON)}$  vs. Junction Temperature



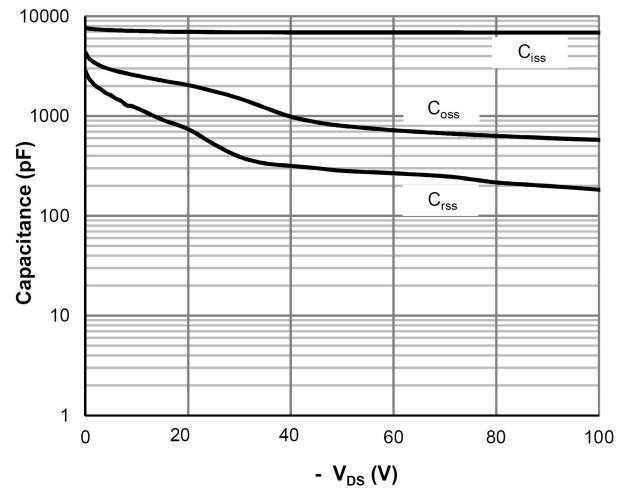
$V_{GS(th)}$  vs. Junction Temperature



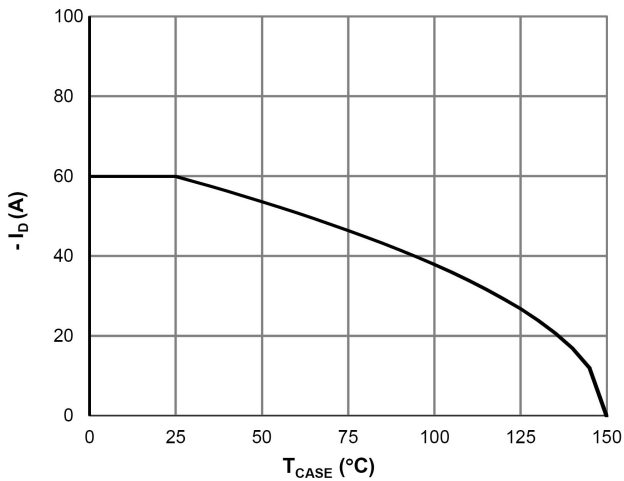
$V_{BR(DSS)}$  vs. Junction Temperature



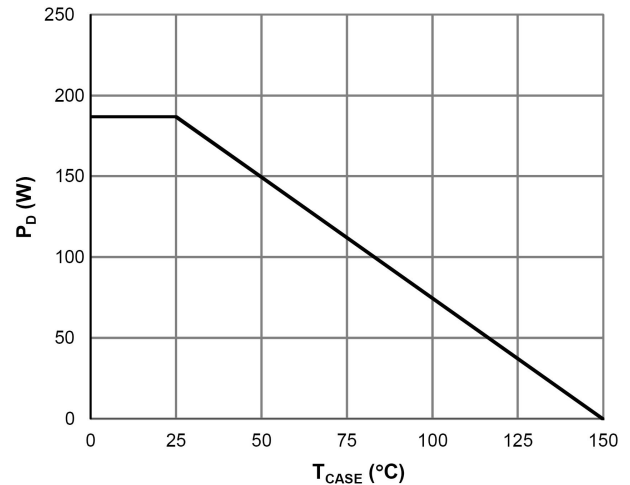
Body-Diode Characteristics



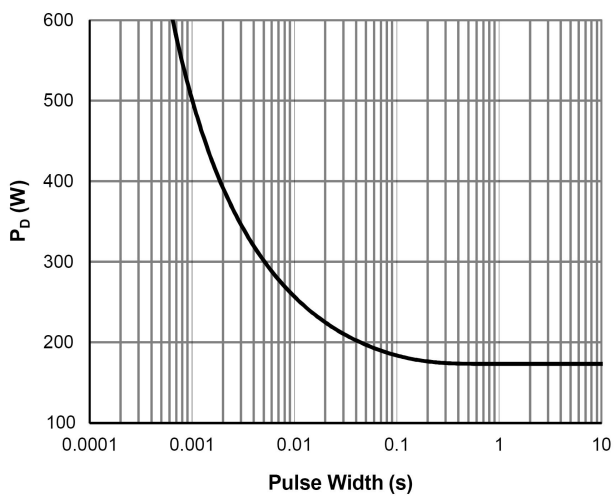
Capacitance Characteristics



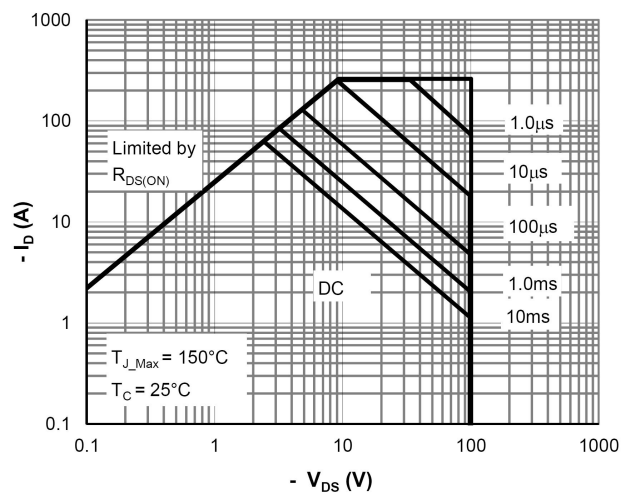
Current De-rating



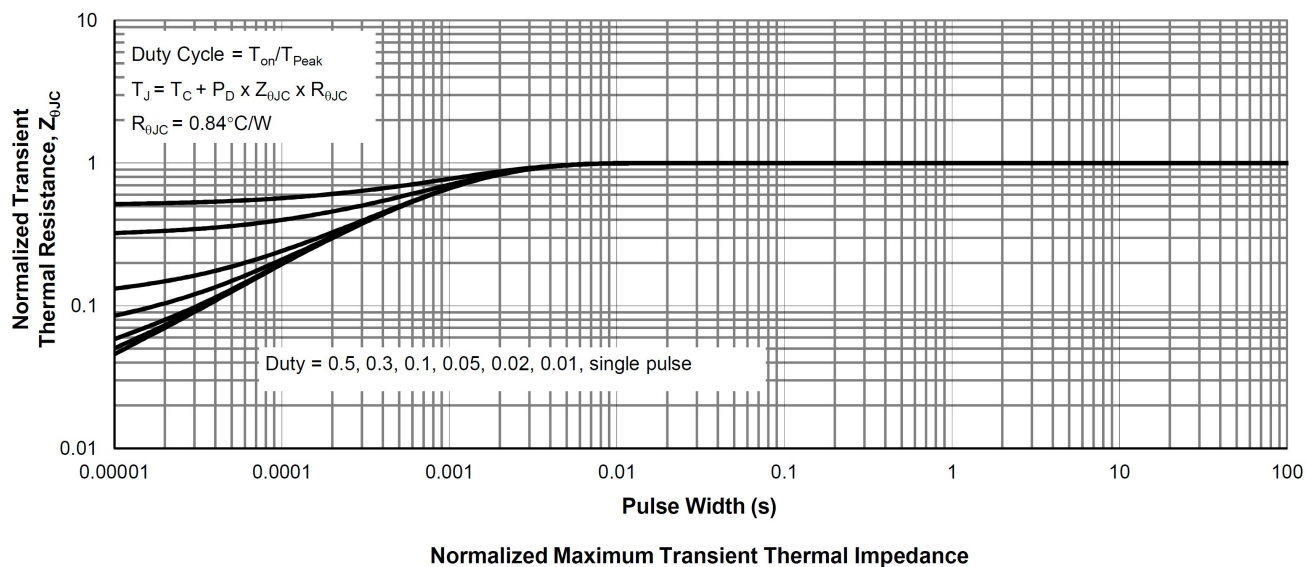
Power De-rating



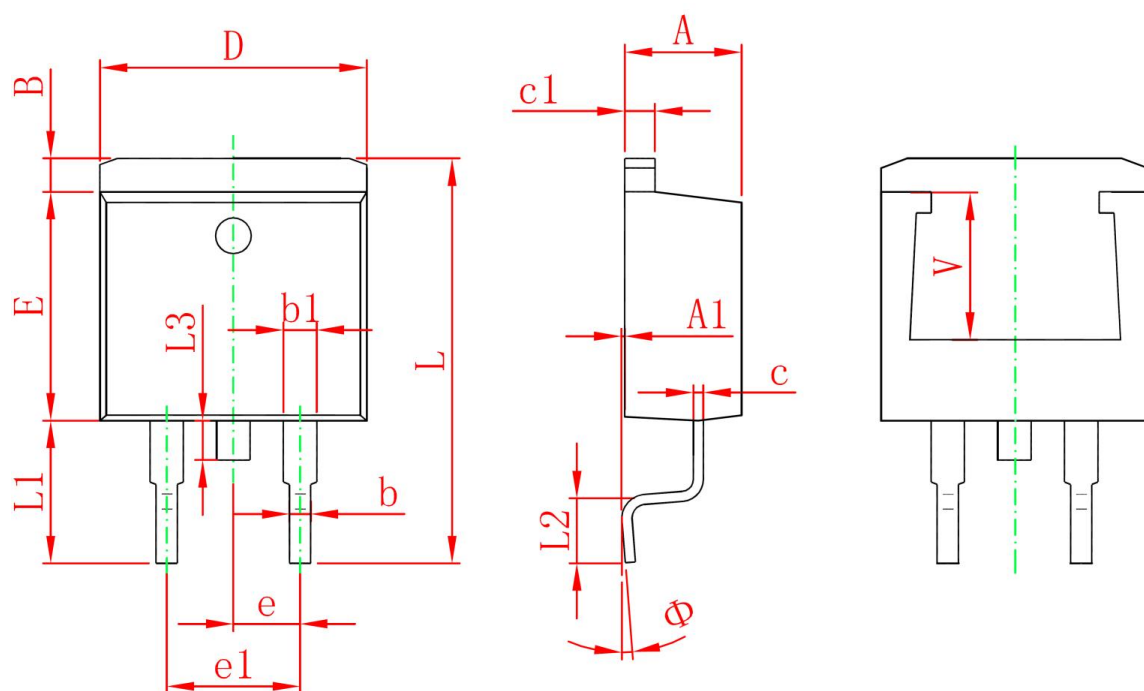
Single Pulse Power Rating, Junction-to-Case



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.	