

Product Summary

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

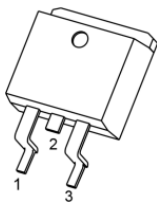
Feature

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

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

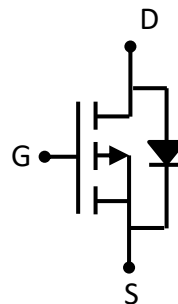
Applications

Package

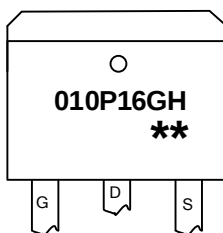


TO-263(G:1 D:2 S:3)

Circuit diagram



Marking



015P16GH : Product code
** : Week code

Order Information

Device	Package	Unite/Tape
SP010P16GHTD	TO-263	800

Absolute maximum ratings (Ta=25°C, 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°C)	I_D	-60	A
Pulsed drain current	I_{DM}	-240	A
Power dissipation (Tc=25°C)	P_D	198	W
Single pulsed avalanche energy ¹⁾	E_{AS}	402	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.63	°C/W
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

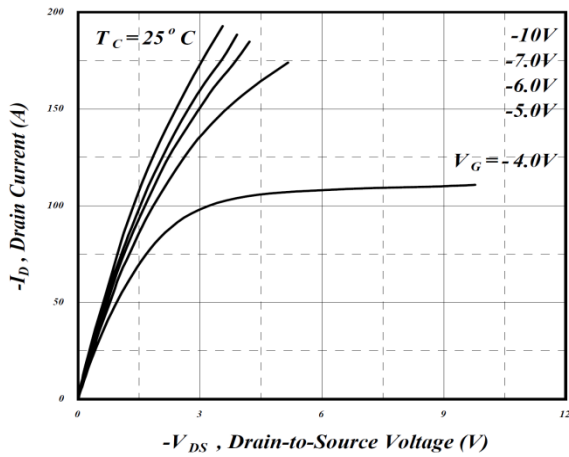
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-100	-	-	V
Drain Cut-Off Current	I _{DSS}	V _{DS} =-80V,V _{GS} =0V	-	-	-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V	-	-	±100	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA	-2	-3	-4	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-30A	-	16	20	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f = 1MHz	-	6825	-	pF
Output Capacitance	C _{oss}		-	752	-	
Reverse Transfer Capacitance	C _{rss}		-	296	-	
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -30V, I _D = -70A, V _{GS} = -10V	---	78	---	nC
Gate-Source Charge	Q _{gs}		---	15	---	
Gate-Drain Charge	Q _{gd}		---	28	---	
Turn-On Delay Time	t _{d(on)}	V _{DD} = -20V, I _D = -70A, V _{GS} = -10V, R _G =2.6Ω	---	16	---	ns
Rise Time	t _r		---	58	---	
Turn-Off Delay Time	t _{d(off)}		---	145	---	
Fall Time	t _f		---	168	---	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 1A, V _{GS} = 0V	-	-	1.2	V

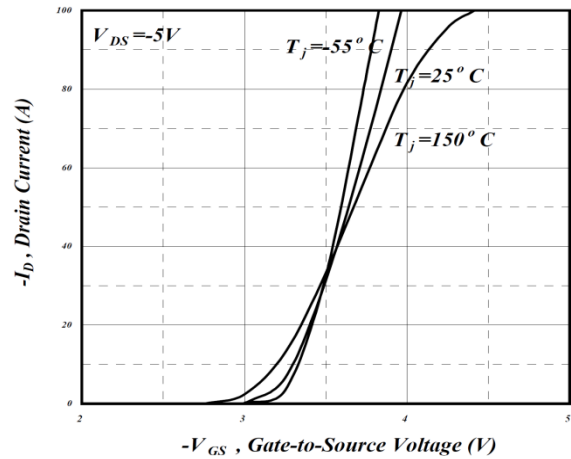
Note:

- E_{AS} is tested at starting $T_j = 25^\circ C$, $V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_G=25m\Omega$;

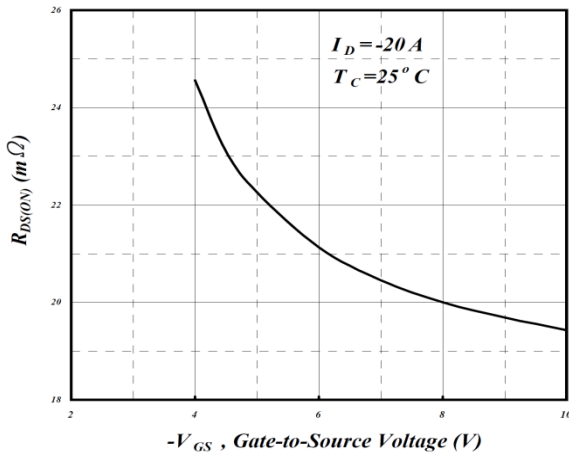
Typical Characteristics



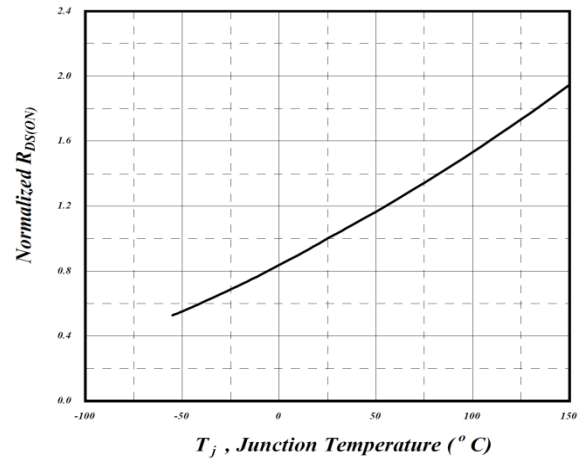
Typical Output Characteristics



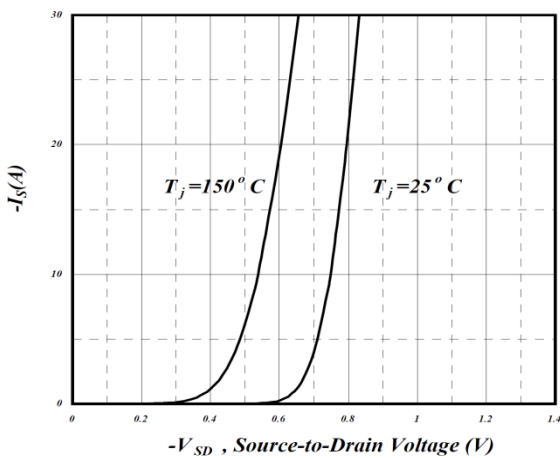
Transfer Characteristics



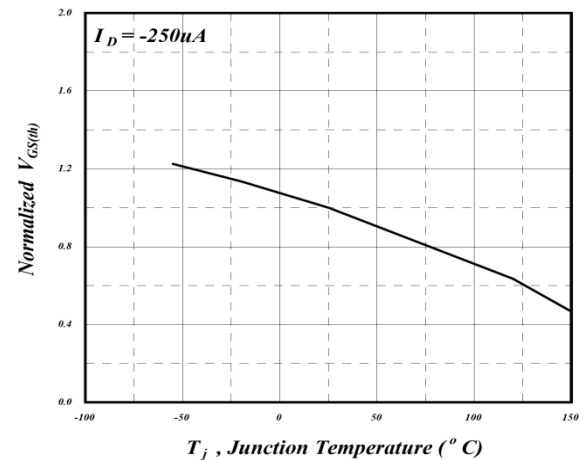
On-Resistance v.s. Gate Voltage



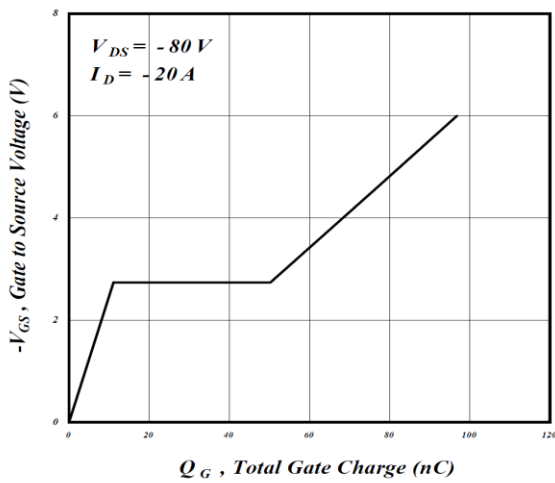
Normalized On-Resistance v.s. Junction Temperature



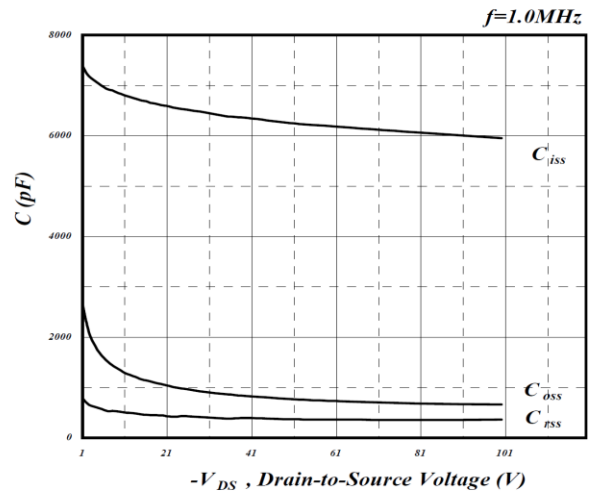
Forward Characteristic of Reverse Diode



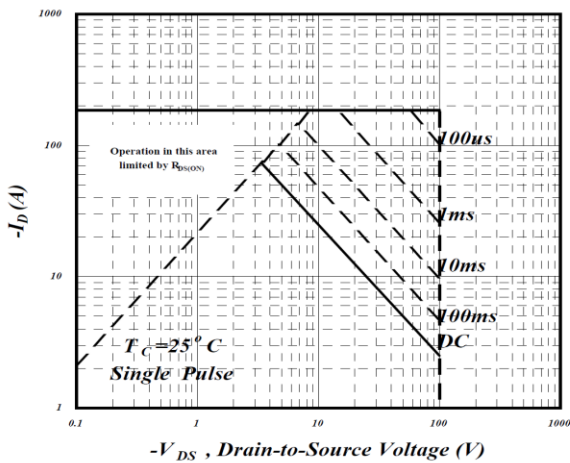
Gate Threshold Voltage v.s. Junction Temperature



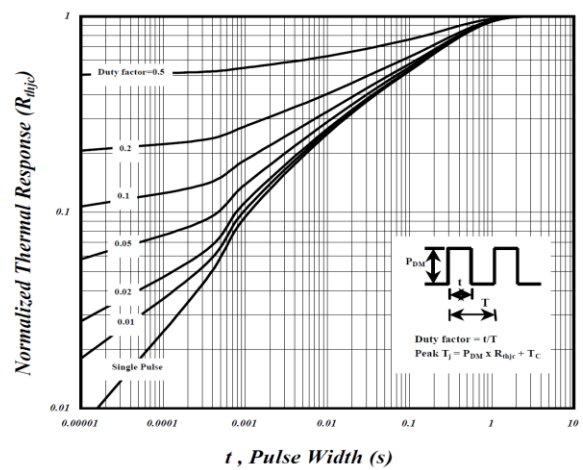
Gate Charge Characteristics



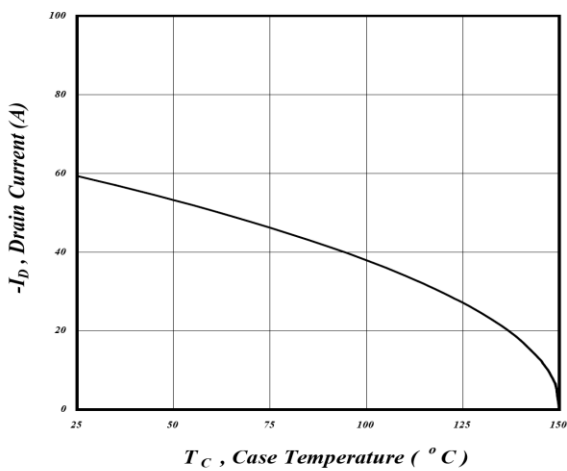
Typical Capacitance Characteristics



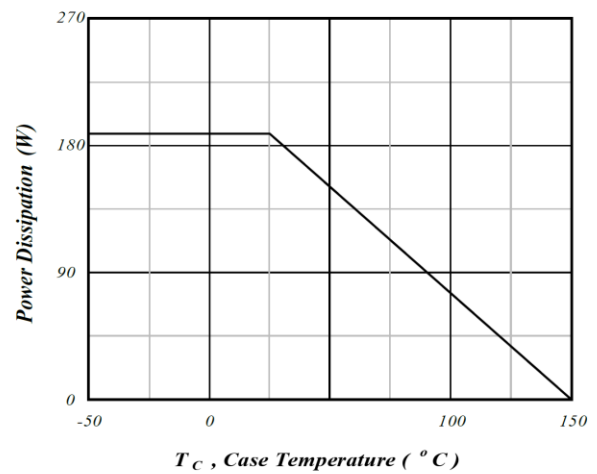
Maximum Safe Operating Area



Effective Transient Thermal Impedance

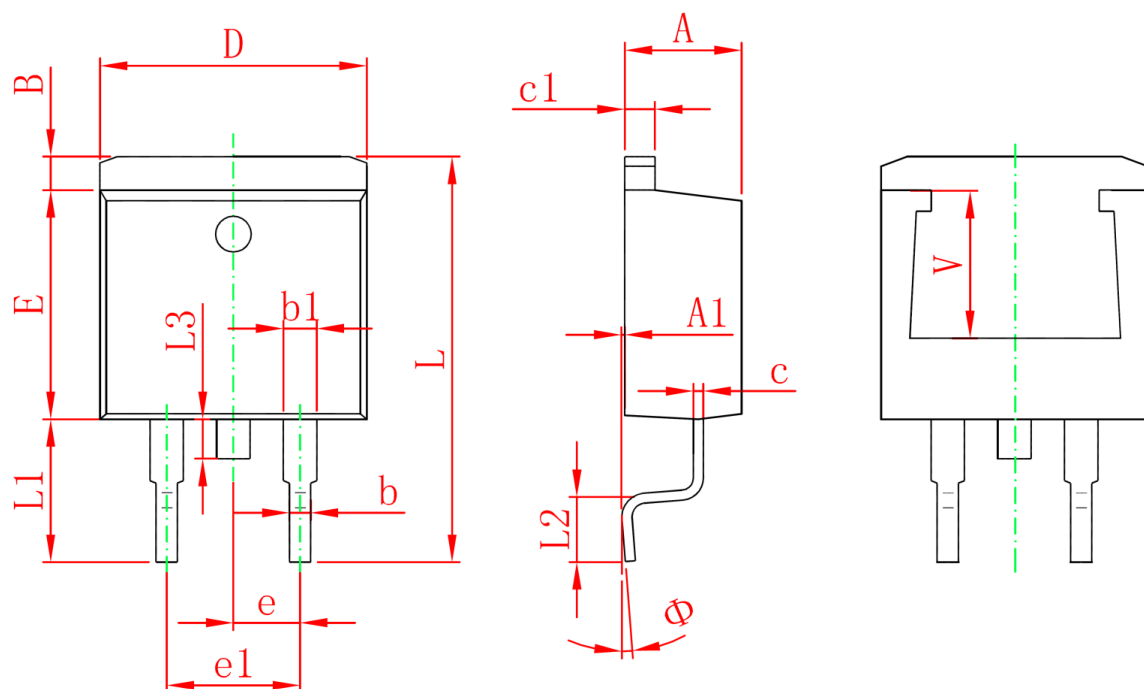


Drain Current v.s. Case Temperature



Power Dissipation v.s. Case Temperature

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.	