

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	70mΩ@-10V	-20A
	85mΩ@-4.5V	



合肥矽普半导体

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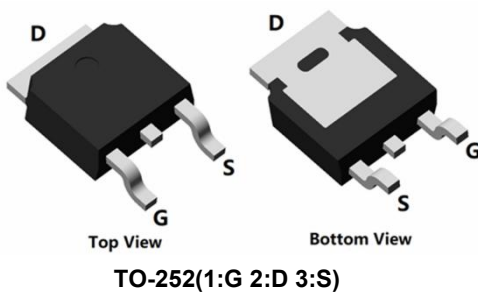
Feature

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

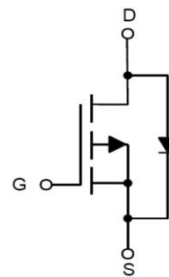
Applications

- Power switching application
- Battery management
- Uninterruptible power supply

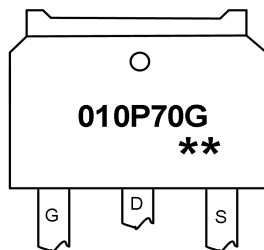
Package



Circuit diagram



Marking



010P70G : Product code
****** : Week code

Order Information

Device	Package	Unit/Tube
SP010P70GTH	TO-252	2500

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	-20	A
Continuous Drain Current (Tc=100°C)	I_D	-13	A
Pulsed Drain Current	I_{DM}	-80	A
Single Pulse Avalanche Energy ¹	E_{AS}	110	mJ
Power Dissipation (Tc=25°C)	P_D	70	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.79	°C/W
Storage Temperature Range	T_{STG}	55 to 150	°C
Operating Junction Temperature Range	T_J	55 to 150	°C

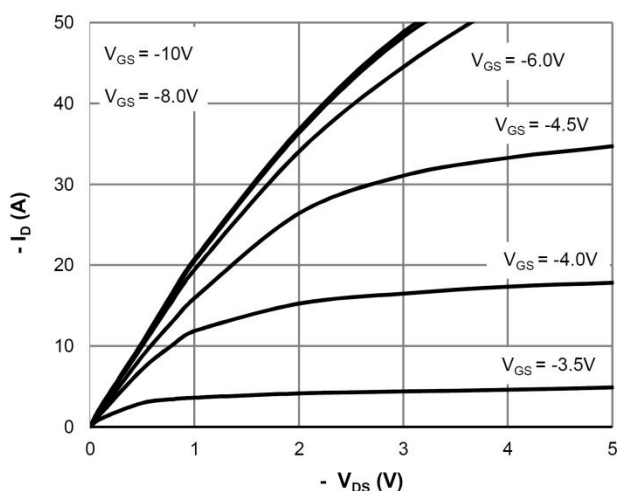
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{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 _{GS} =V _{DS} , I _D =-250uA	-1	-1.7	-2.5	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} =-10V , I _D =-15A	-	70	88	mΩ
		V _{GS} =-4.5V , I _D =-10A	-	85	115	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =-10V, f=1.0MHz	-	1050	-	pF
Output Capacitance	C _{oss}		-	120	-	
Reverse Transfer Capacitance	C _{rss}		-	23	-	
Total Gate Charge	Q _g	V _{DS} =-50V , V _{GS} =-10V , I _D =10A	-	20	-	nC
Gate-Source Charge	Q _{gs}		-	4	-	
Gate-Drain Charge	Q _{gd}		-	4.4	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} =-10V,V _{DD} =-50V, I _D =-5A, R _G =6Ω	-	15	-	nS
Rise Time	t _r		-	30	-	
Turn-Off Delay Time	t _{d(off)}		-	73	-	
Fall Time	t _f		-	76	-	
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		-	-	-20	A
Reverse Recovery Time	T _{rr}	I _S =-5A, di/dt=-100A/us, T _J =25℃	-	72	-	nS
Reverse Recovery Charge	Q _{rr}		-	136	-	nC

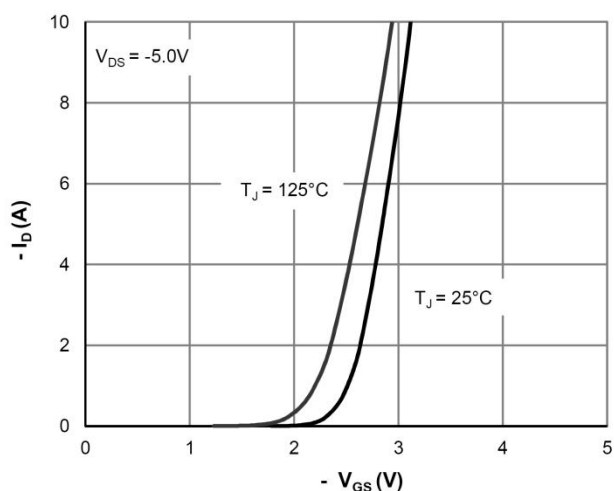
Note:

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

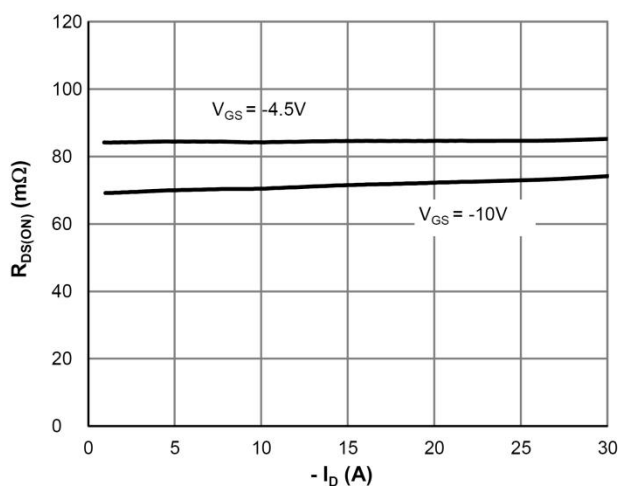
Typical Characteristics



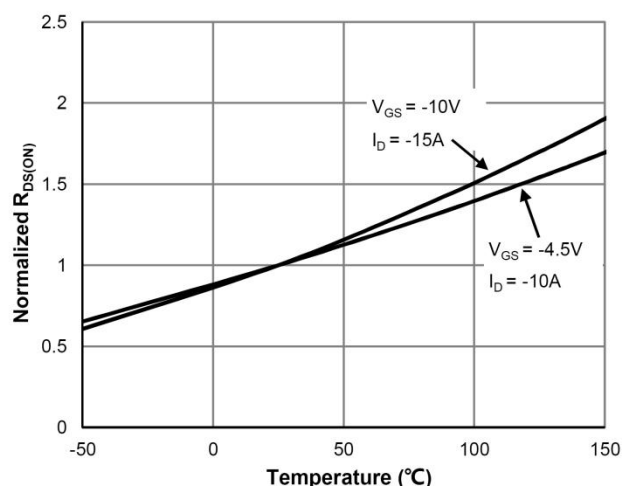
Saturation Characteristics



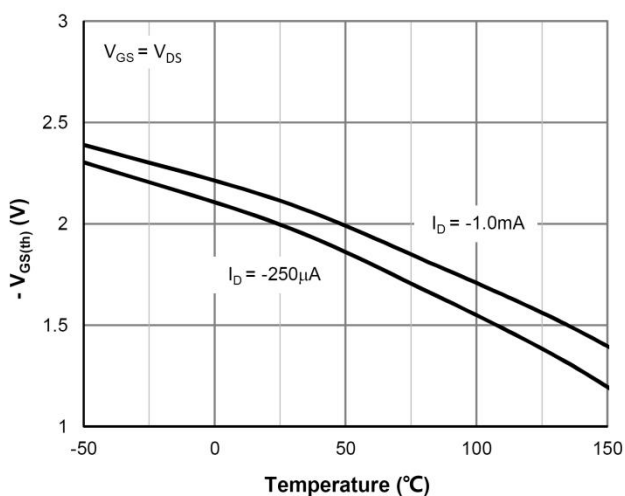
Transfer Characteristics



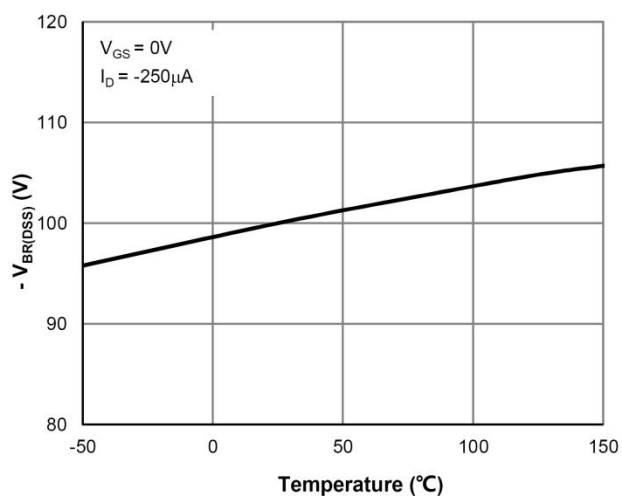
$R_{DS(ON)}$ vs. Drain Current



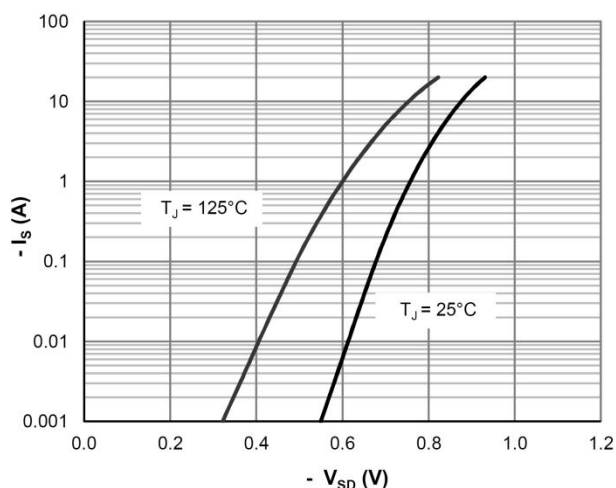
$R_{DS(ON)}$ vs. Junction Temperature



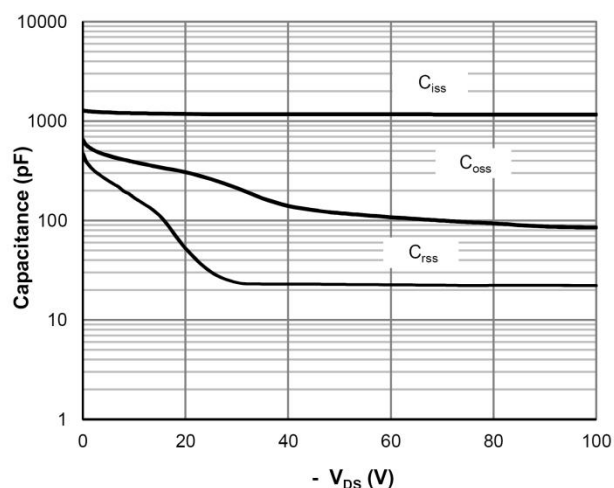
$V_{GS(th)}$ vs. Junction Temperature



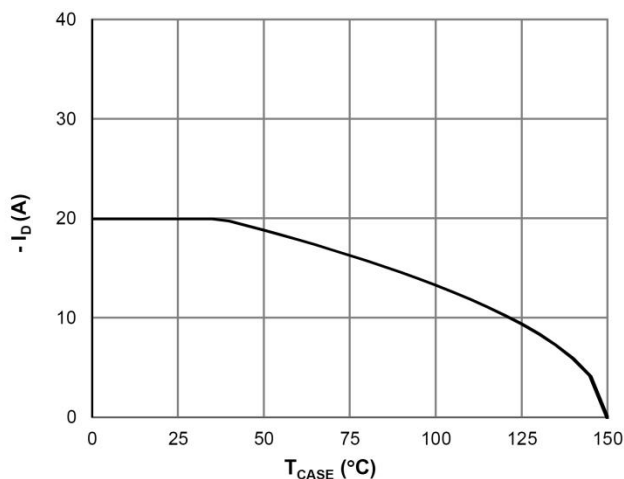
$V_{BR(DSS)}$ vs. Junction Temperature



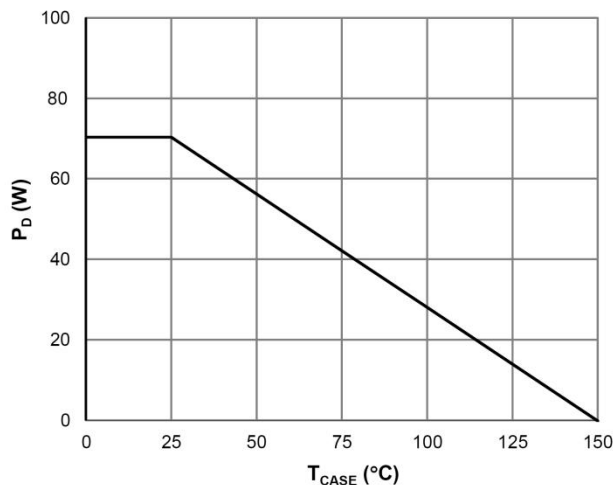
Body-Diode Characteristics



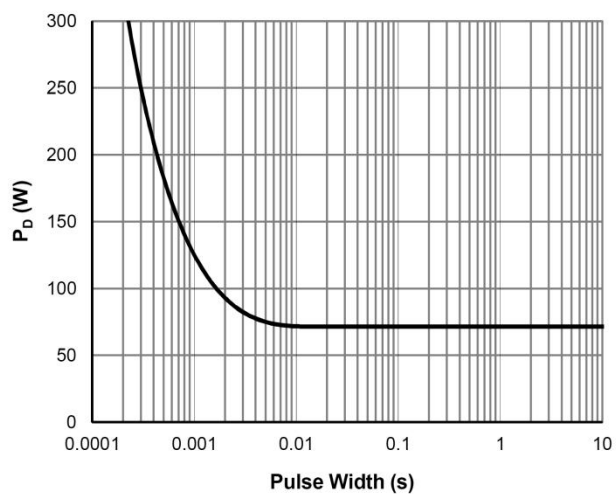
Capacitance Characteristics



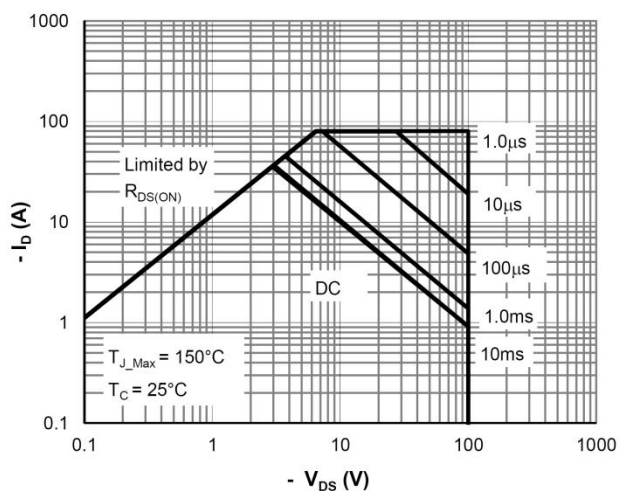
Current De-rating



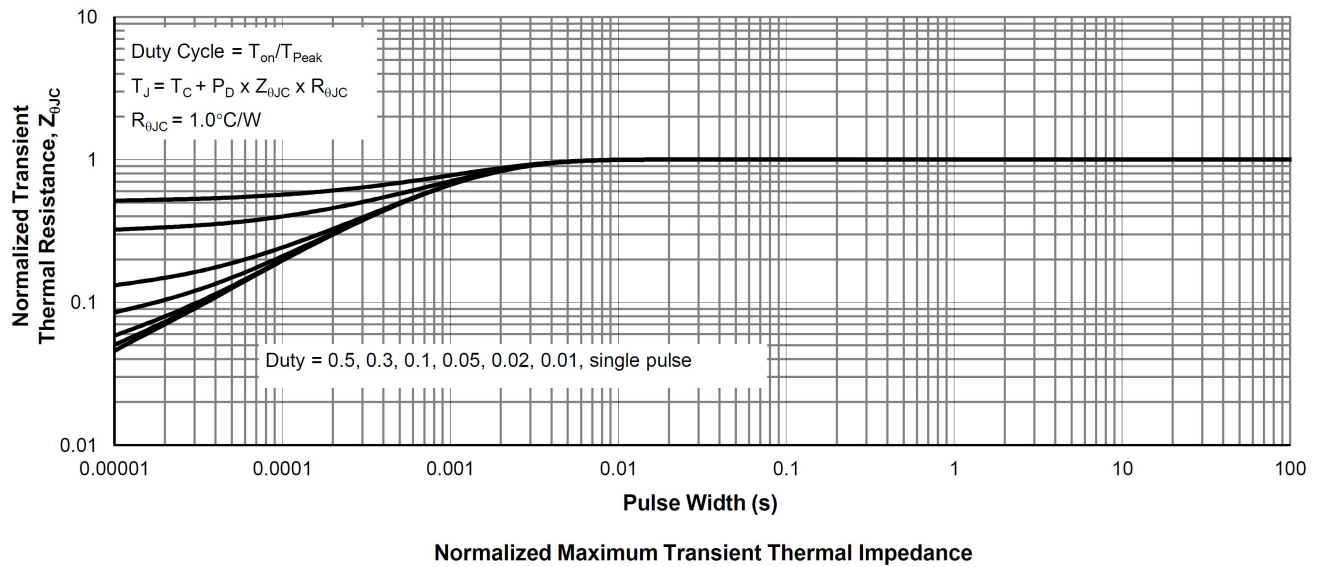
Power De-rating



Single Pulse Power Rating, Junction-to-Case

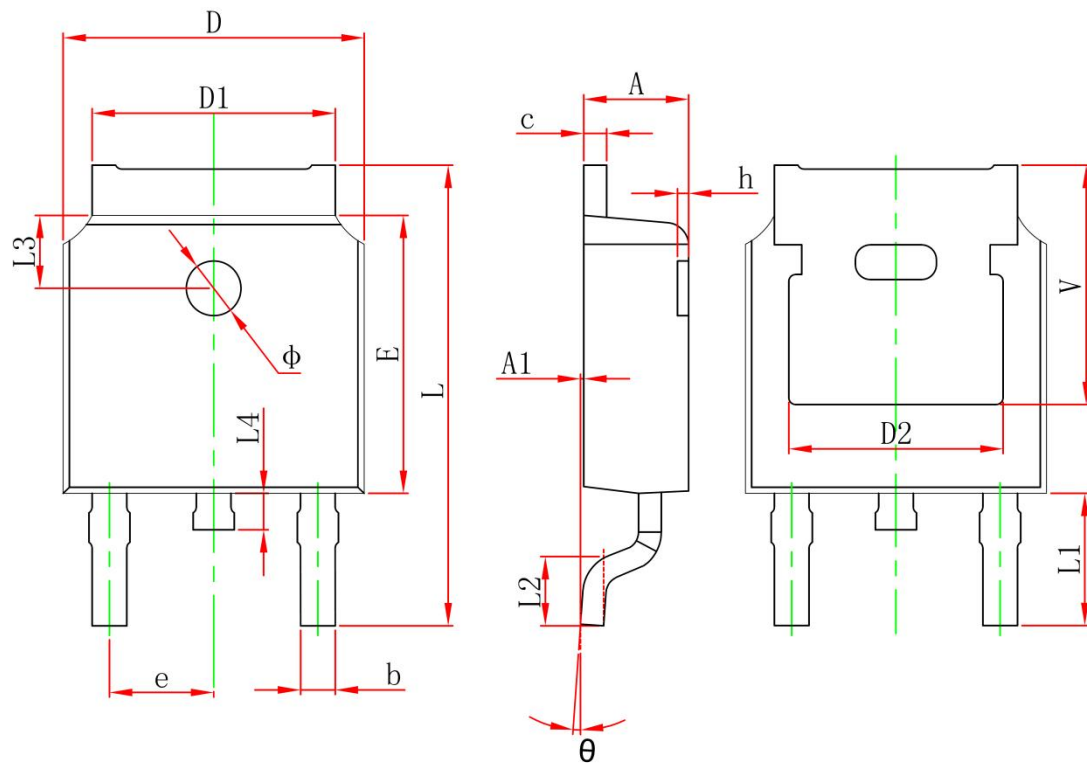


Maximum Safe Operating Area





TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	