

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	35mΩ@-10V	-25A
	45mΩ@-4.5V	



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

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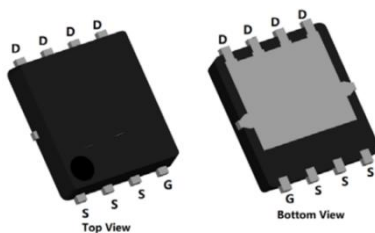
Feature

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

Applications

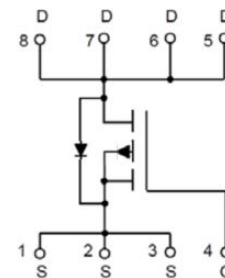
- Power switching application
- Battery management
- Uninterruptible power supply

Package

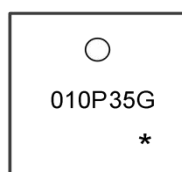


PDFN5×6-8L

Circuit diagram



Marking



010P35G : Product code
***** : Month code

Order Information

Device	Package	Unit/Tube
SP010P35GNK	PDFN5×6-8L	5000

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

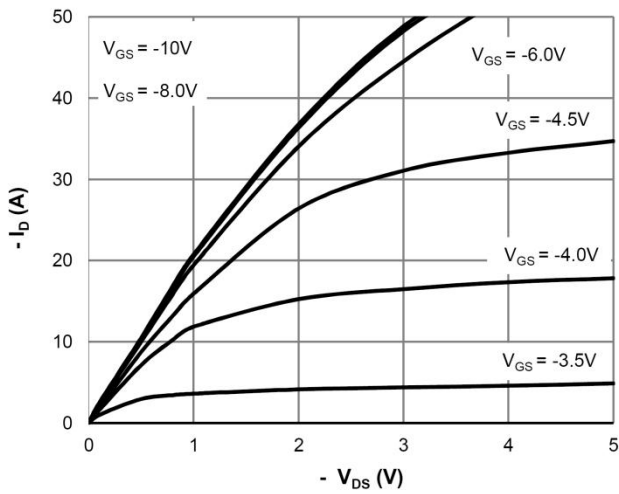
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	-25	A
Continuous Drain Current (Tc=100°C)	I_D	-17	A
Pulsed Drain Current	I_{DM}	-100	A
Single Pulse Avalanche Energy ¹	E_{AS}	240	mJ
Power Dissipation (Tc=25°C)	P_D	100	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.25	°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)

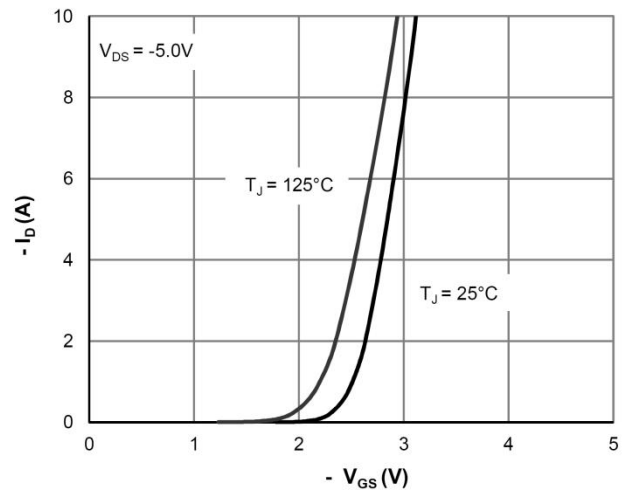
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	B _V DSS	I _D = -250μA, V _{GS} = 0V	-100	-	-	V
Drain Cut-Off Current	I _{DSS}	V _{DS} = -80V, V _{GS} = 0V	-	-	-1	uA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1	-1.6	-2.5	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} =-10V , I _D =-15A	-	35	45	mΩ
		V _{GS} =-4.5V , I _D =-10A	-	45	60	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =-10V, f=1.0MHz	-	2205	-	pF
Output Capacitance	C _{oss}		-	197	-	
Reverse Transfer Capacitance	C _{rss}		-	14	-	
Total Gate Charge	Q _g	V _{DS} =-50V , V _{GS} =-10V , I _D =20A	-	24	-	nC
Gate-Source Charge	Q _{gs}		-	6	-	
Gate-Drain Charge	Q _{gd}		-	3.7	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} =-10V,V _{DD} =-50V, I _D =-5A, R _G =6Ω	-	13	-	nS
Rise Time	t _r		-	57	-	
Turn-Off Delay Time	t _{d(off)}		-	41	-	
Fall Time	t _f		-	84	-	
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		-	-	-25	A
Reverse Recovery Time	T _{rr}	I _S =-15A, di/dt=-100A/us, T _J =25℃	-	51	-	nS
Reverse Recovery Charge	Q _{rr}		-	130	-	nC

Note:

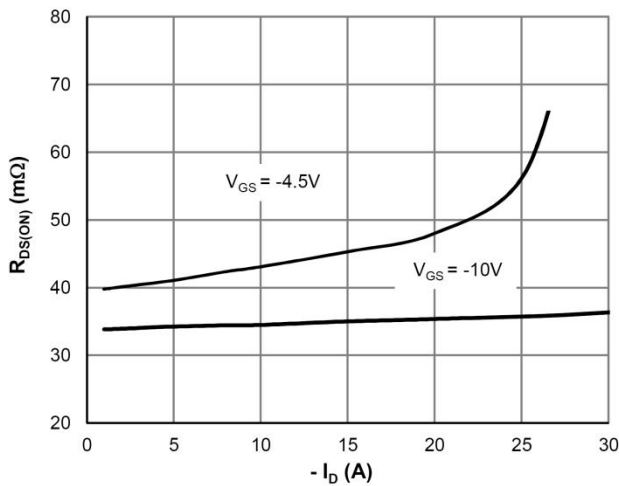
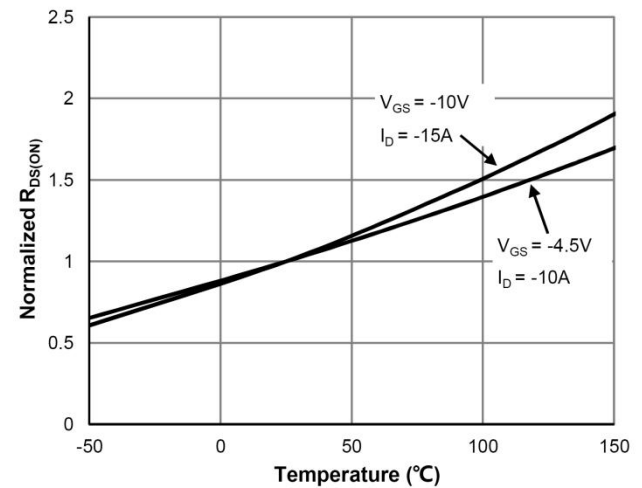
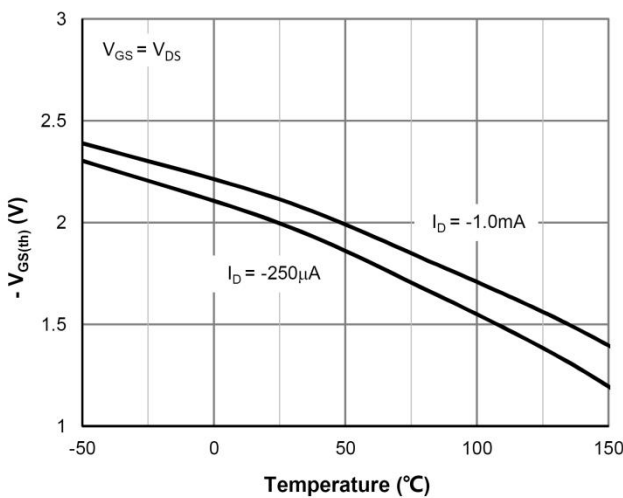
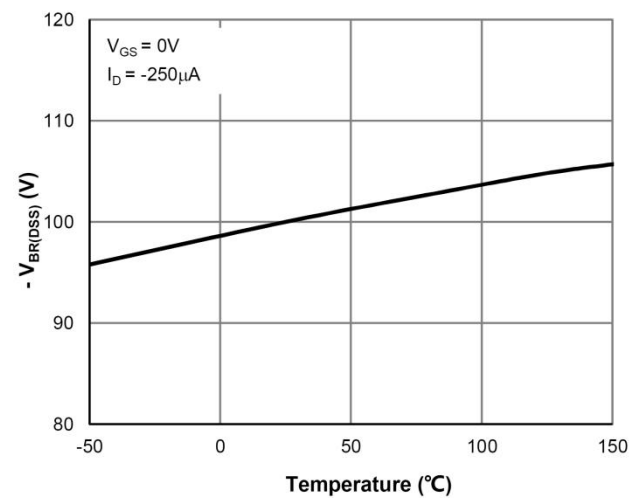
- The EAS test condition is $V_{DD}=-50V, V_{GS}=-10V, L=0.5mH, R_G=25\Omega$

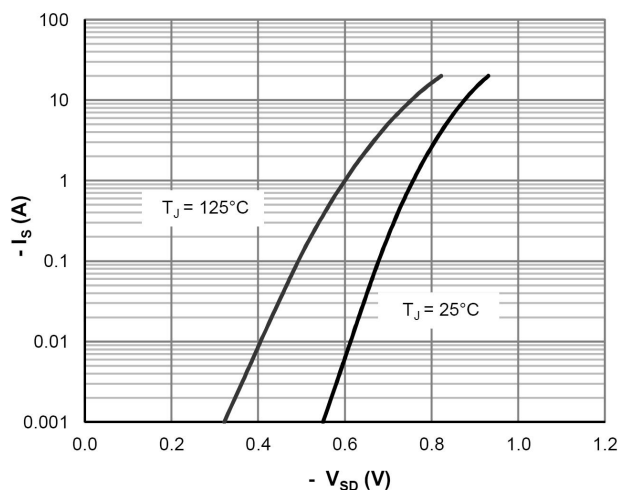
**Typical Characteristics**

Saturation Characteristics

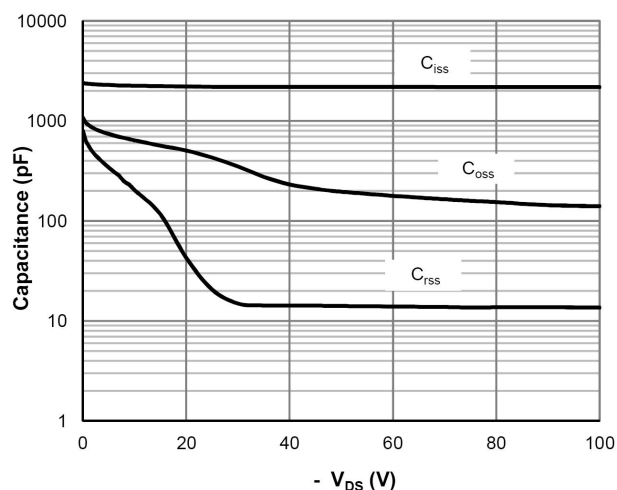


Transfer Characteristics

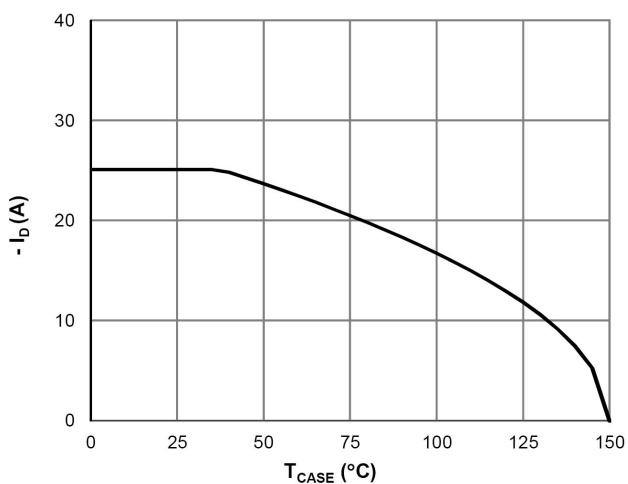
 $R_{DS(on)}$ vs. Drain Current $R_{DS(on)}$ vs. Junction Temperature $V_{GS(th)}$ vs. Junction Temperature $V_{BR(DSS)}$ vs. Junction Temperature



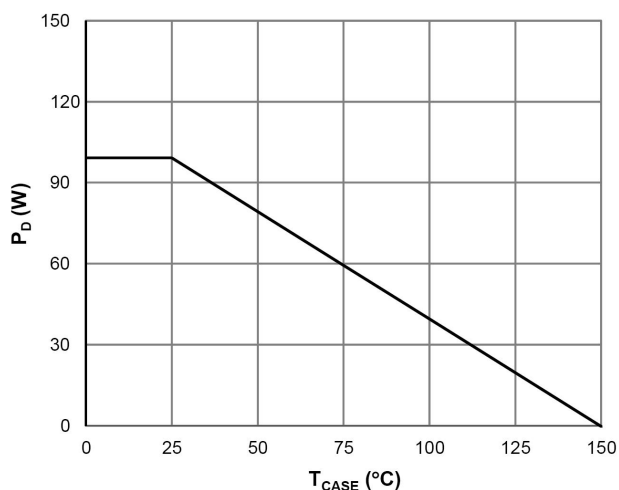
Body-Diode Characteristics



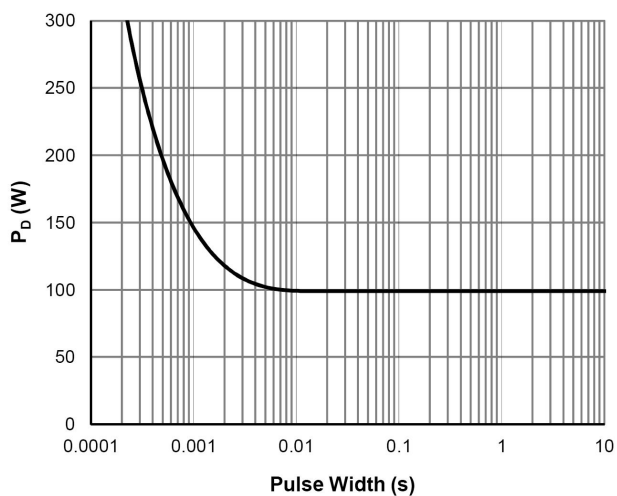
Capacitance Characteristics



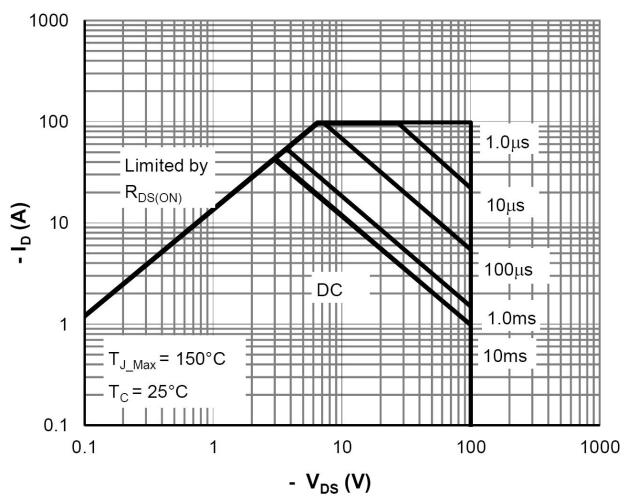
Current De-rating



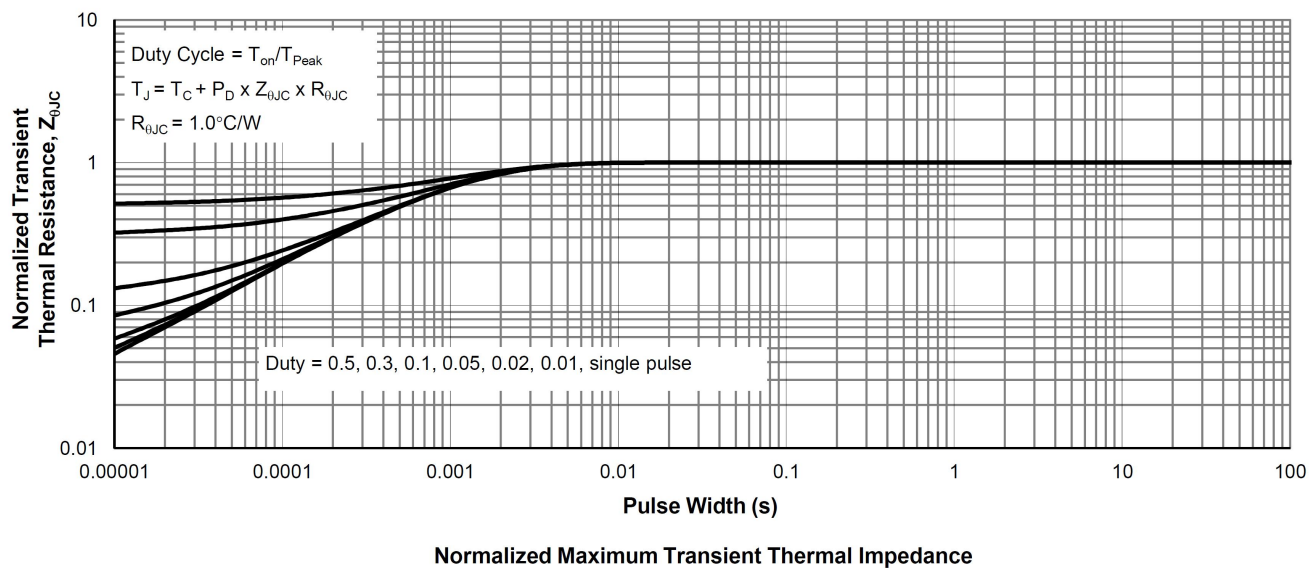
Power De-rating



Single Pulse Power Rating, Junction-to-Case

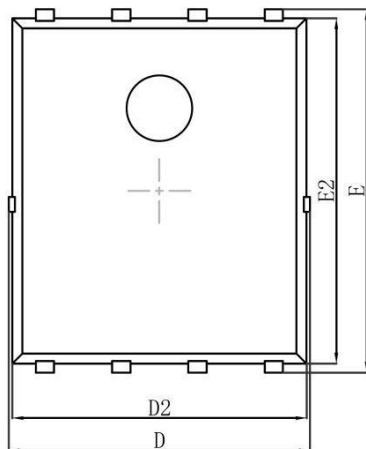
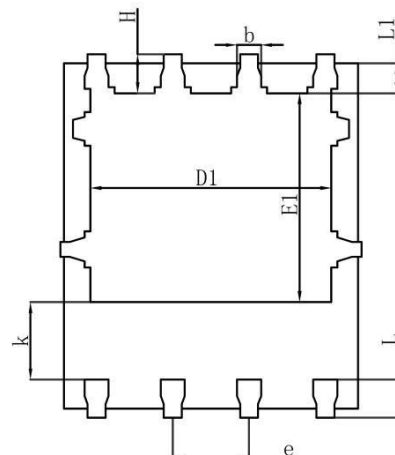
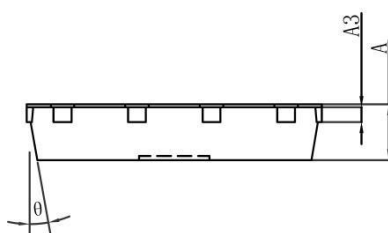


Maximum Safe Operating Area





PDFN5X6-8L Package Information

Top View
[顶视图]Bottom View
[背视图]Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°