Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	36mΩ@-10V	-25A
	51mΩ@-4.5V	

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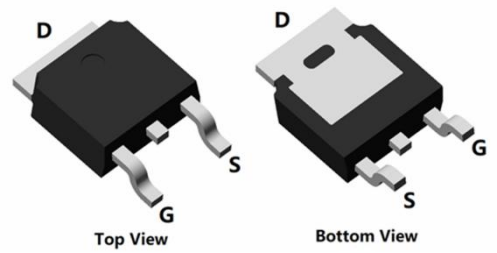
Feature

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

Applications

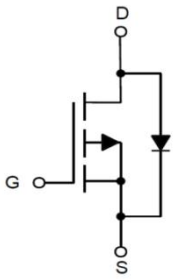
- Power switching application
- Battery management
- Uninterruptible power supply

Package

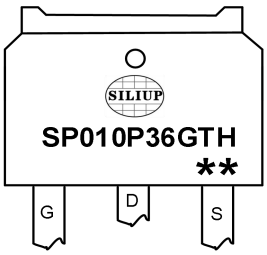


TO-252(1:G 2:D 3:S)

Circuit diagram



Marking



SP010P36GTH : **Product code**
** : **Week code**

Order Information

Device	Package	Unit/Tube
SP010P36GTH	TO-252	2500

Absolute maximum ratings (Ta=25℃ 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℃)	I_D	-25	A
Continuous Drain Current (Tc=100℃)	I_D	-17	A
Pulsed Drain Current	I_{DM}	-100	A
Single Pulse Avalanche Energy[1]	E_{AS}	196	mJ
Power Dissipation (Tc=25℃)	P_D	95	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.32	℃/W
Storage Temperature Range	T_{STG}	55 to 150	℃
Operating Junction Temperature Range	T_J	55 to 150	℃

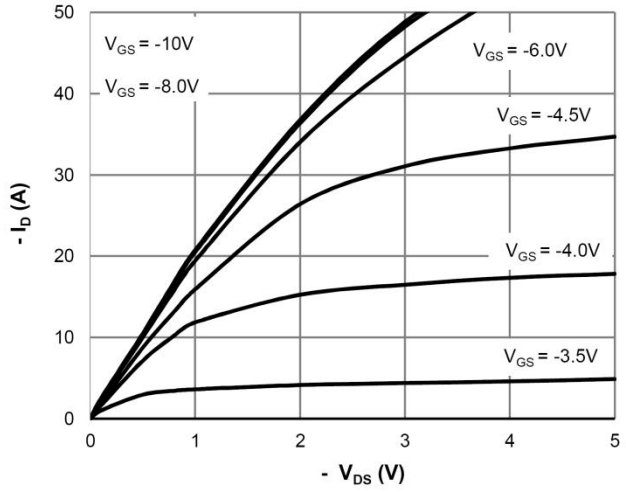
Electrical characteristics (Ta=25℃, unless otherwise noted)

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	$V_{GS(th)}$	VGS=VDS , ID =-250uA	-1	-2.2	-3	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS=-10V , ID=-15A	-	36	45	mΩ
		VGS=-4.5V , ID=-10A	-	51	68	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-50V, V_{GS} =-10V, f=1.0MHz	-	1456	-	pF
Output Capacitance	C_{oss}		-	225	-	
Reverse Transfer Capacitance	C_{rss}		-	3	-	
Total Gate Charge	Q_g	V_{DS}=-50V , V_{GS}=-10V , I_D=20A	-	20	-	nC
Gate-Source Charge	Q_{gs}		-	6.1	-	
Gate-Drain Charge	Q_{gd}		-	3.5	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V,V_{DD}=-50V, I_D=-5A, R_G=6Ω	-	11	-	nS
Rise Time	t_r		-	56	-	
Turn-Off Delay Time	$t_{d(off)}$		-	46	-	
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	Trr	I_S=-15A, di/dt=-100A/us, T_J=25℃	-	55	-	nS
Reverse Recovery Charge	Qrr		-	140	-	nC

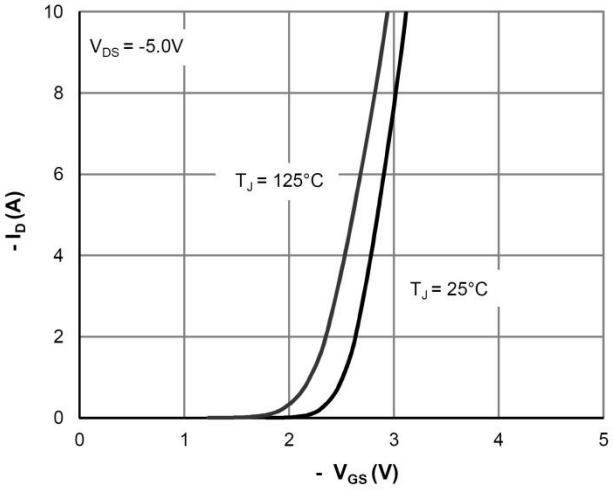
Note：

1. The EAS test condition is VDD=-50V,VGS=-10V,L=0.5mH,RG=25Ω

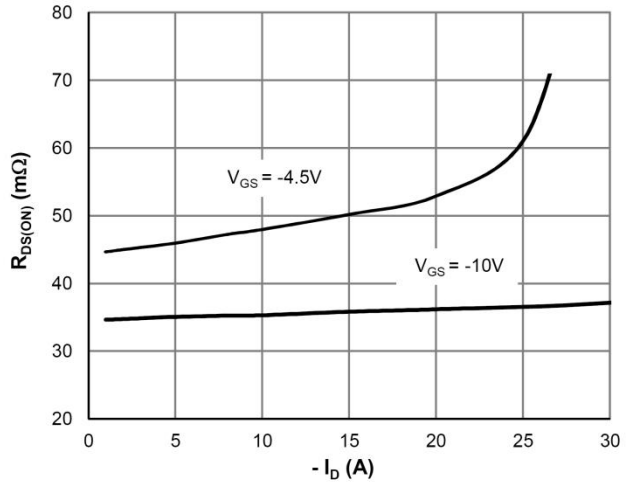
Typical Characteristics



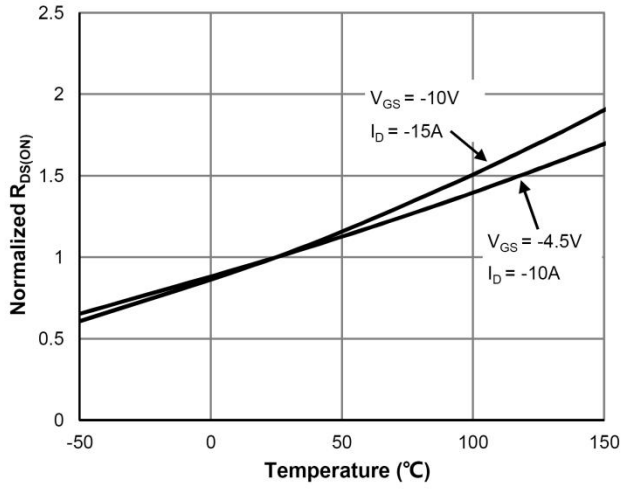
Saturation Characteristics



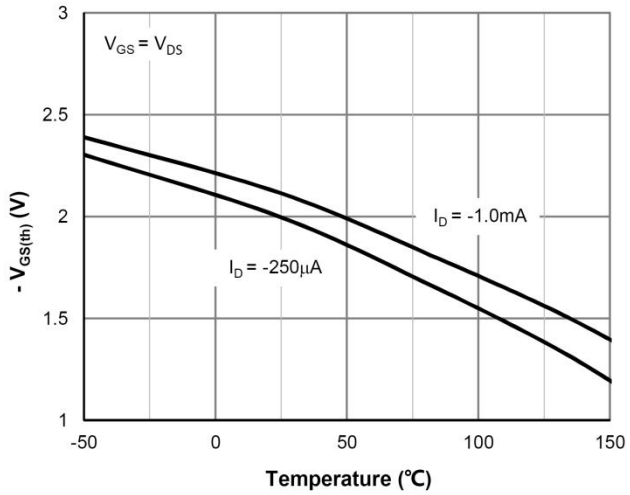
Transfer Characteristics



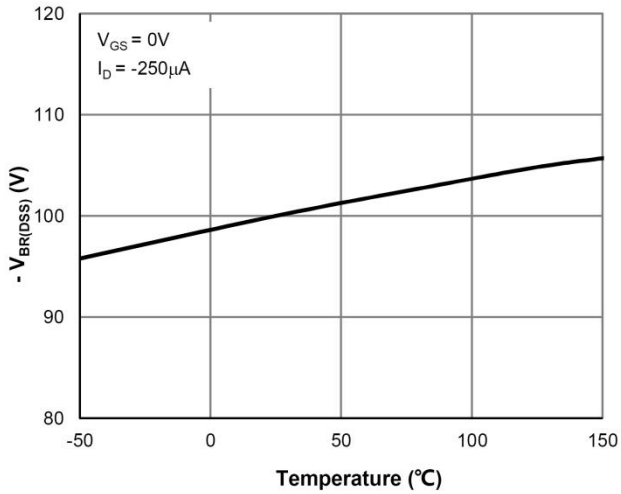
$R_{DS(ON)}$ vs. Drain Current



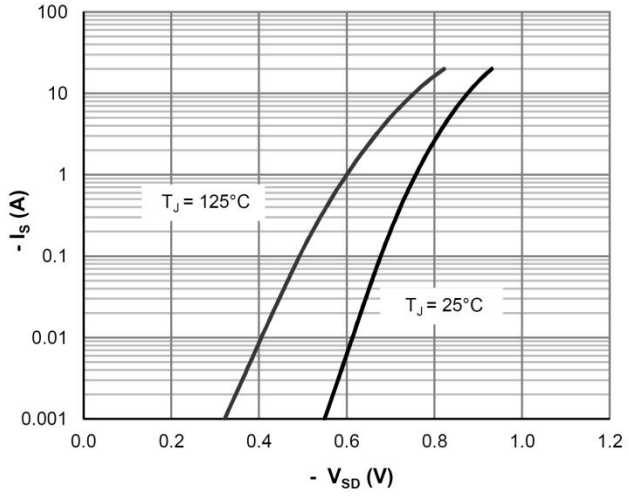
$R_{DS(ON)}$ vs. Junction Temperature



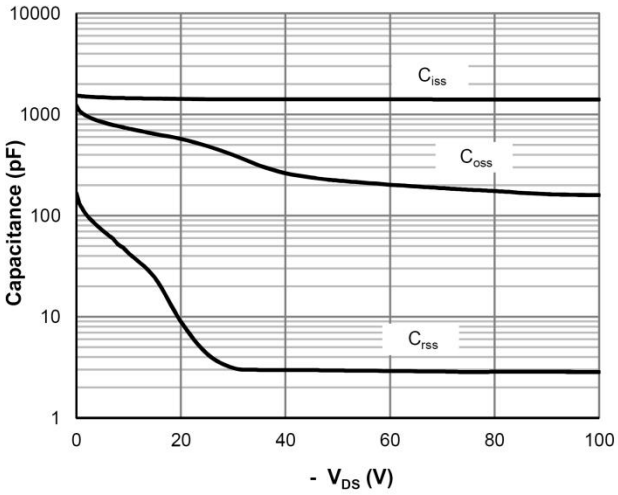
$V_{GS(th)}$ vs. Junction Temperature



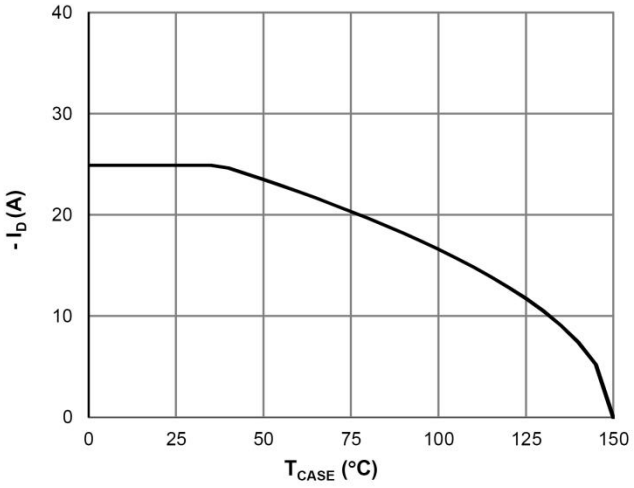
$V_{BR(DSS)}$ vs. Junction Temperature



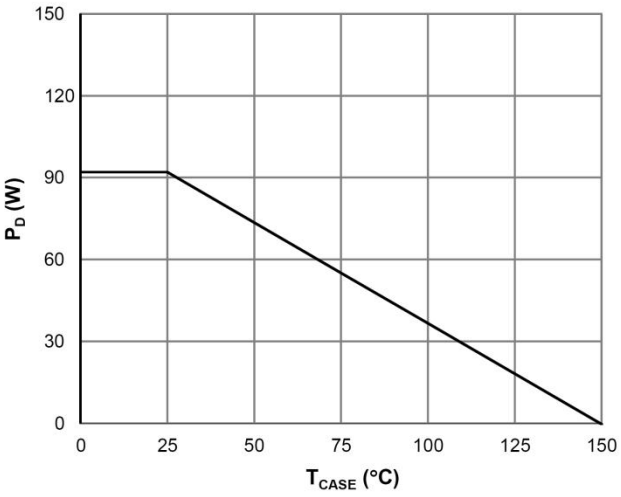
Body-Diode Characteristics



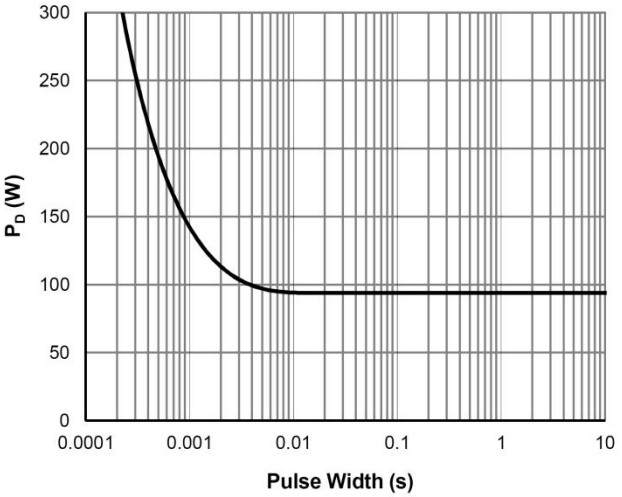
Capacitance Characteristics



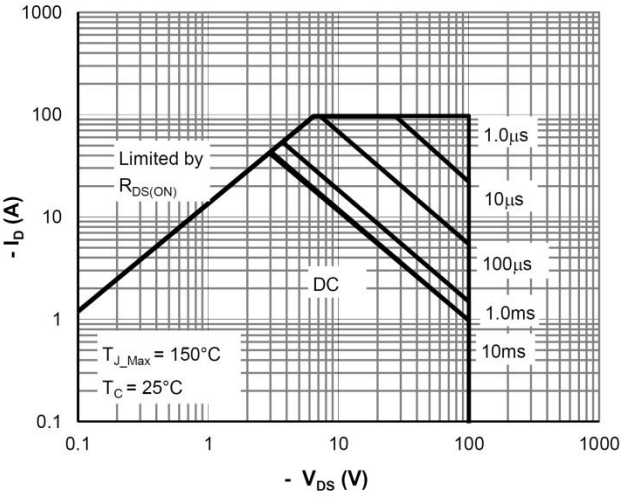
Current De-rating



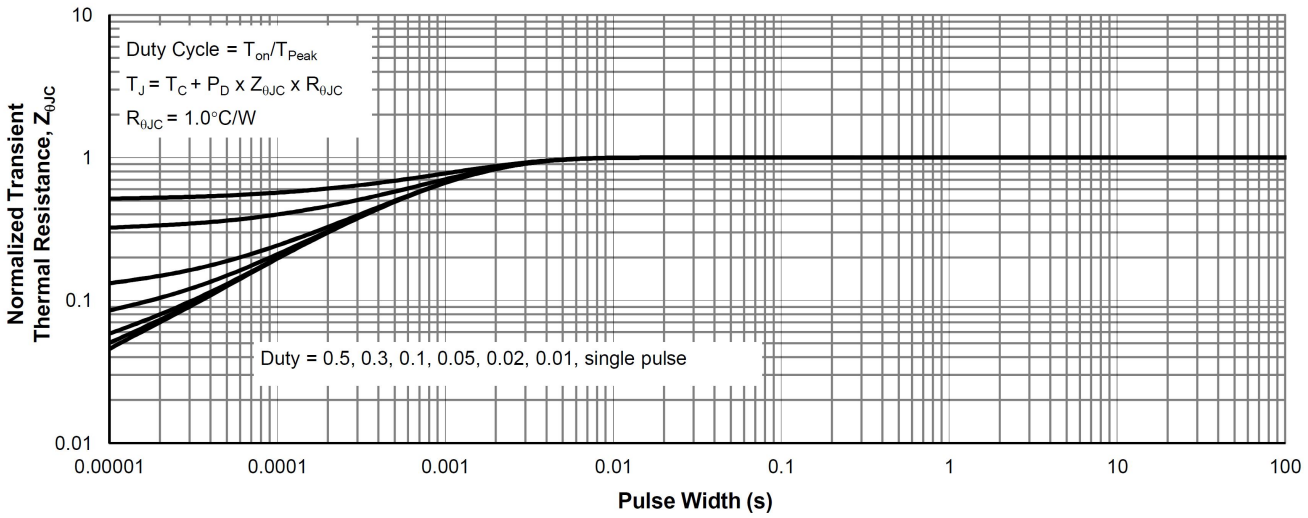
Power De-rating



Single Pulse Power Rating, Junction-to-Case

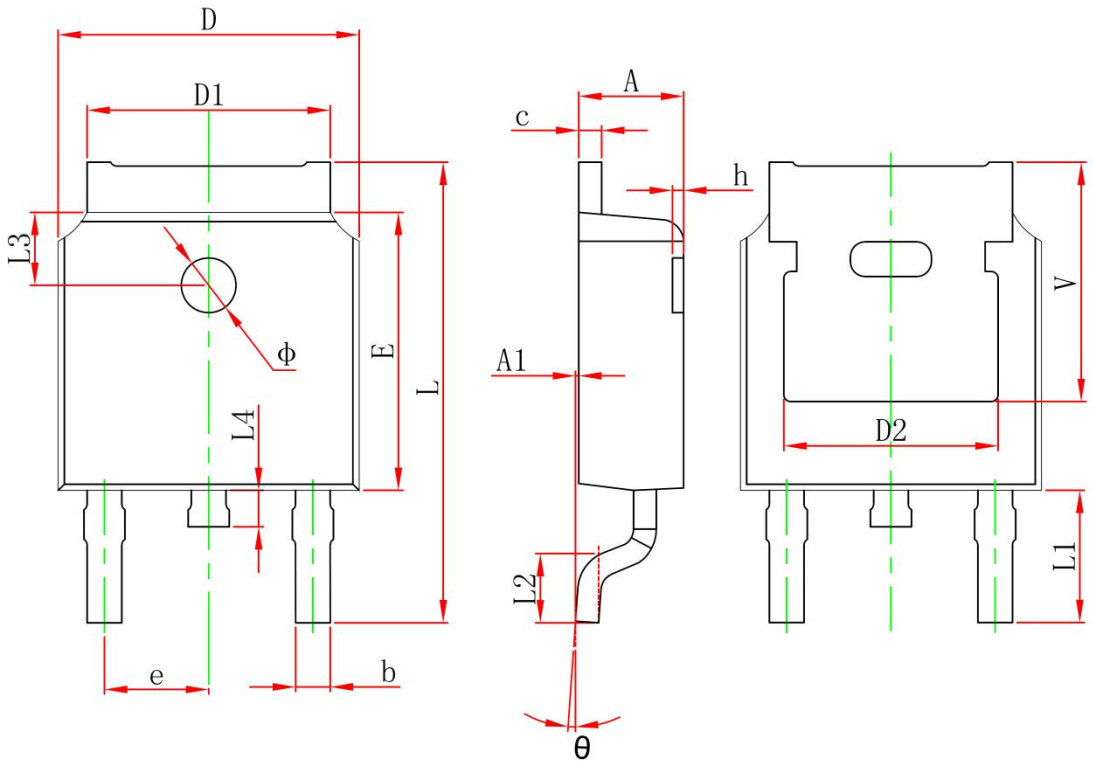


Maximum Safe Operating Area



Normalized Maximum Transient Thermal Impedance

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.	