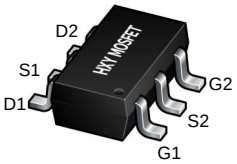
Description

The Si3932DV uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

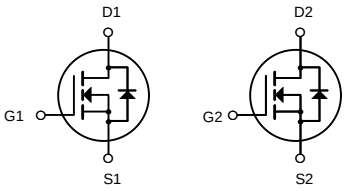


SOT-23-6L

General Features

V_{DS} = 30V I_D = 4.5A

$R_{DS(ON)}$ < 38mΩ @ V_{GS}=10 V



Dual N-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
Si3932DV	SOT-23-6L	HXY MOSFET	3000

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Drain Current, V_{GS} @ 4.5V[3]	4.5	A
I_{DM}	Pulsed Drain Current[1]	15	A
P_D@T_A=25℃	Total Power Dissipation	1.25	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	125	℃/W

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS}=10V, I_D=4A	-	29	38	mΩ
		V_{GS}=4.5V, I_D=3A	-	45	65	
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1.0MHz	-	233	-	pF
C_{oss}	Output Capacitance		-	44	-	pF
C_{rss}	Reverse Transfer Capacitance		-	33	-	pF
Q_g	Total Gate Charge	V_{DS}=15V, I_D=2A, V_{GS}=10V	-	3	-	nC
Q_{gs}	Gate-Source Charge		-	0.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	0.8	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15V, I_D=4A, R_{GEN}=3Ω, V_{GS}=10V	-	4	-	ns
t_r	Turn-on Rise Time		-	2.1	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	15	-	ns
t_f	Turn-off Fall Time		-	3.2	-	ns
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	4.5	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	16	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=4A	-	-	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

Figure1: Output Characteristics

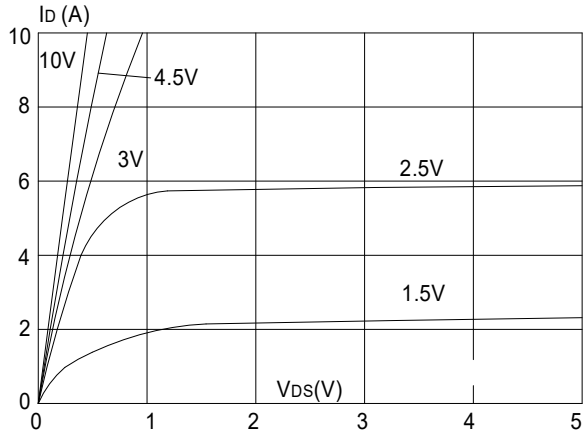


Figure 2: Typical Transfer Characteristics

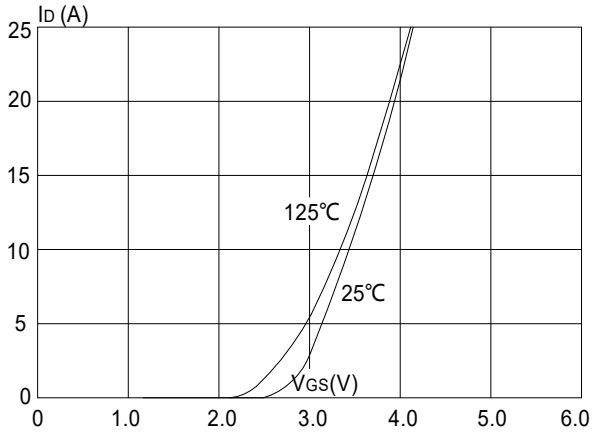


Figure 3: On-resistance vs. Drain Current

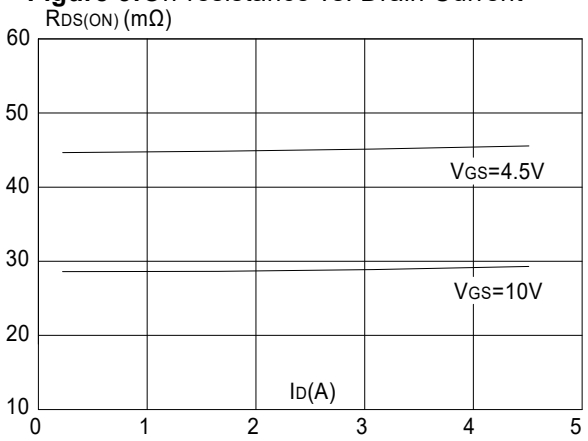


Figure 4: Body Diode Characteristics

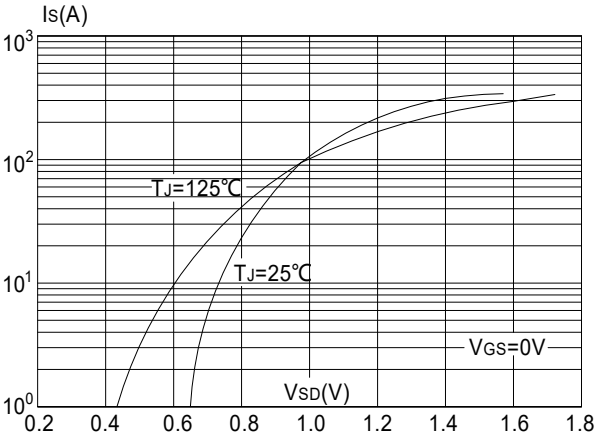


Figure 5: Gate Charge Characteristics

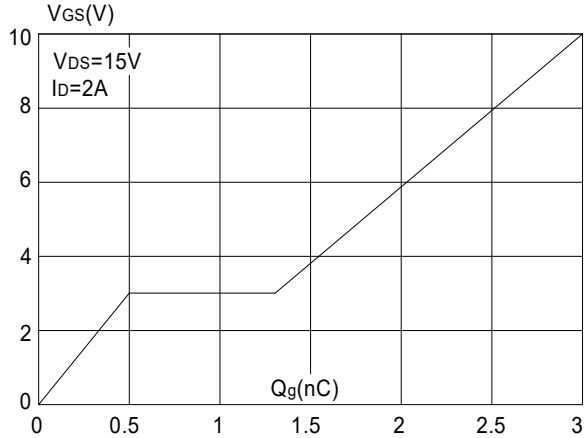


Figure 6: Capacitance Characteristics

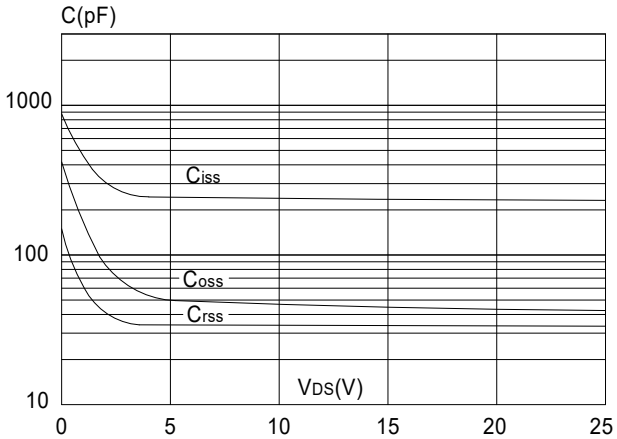


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

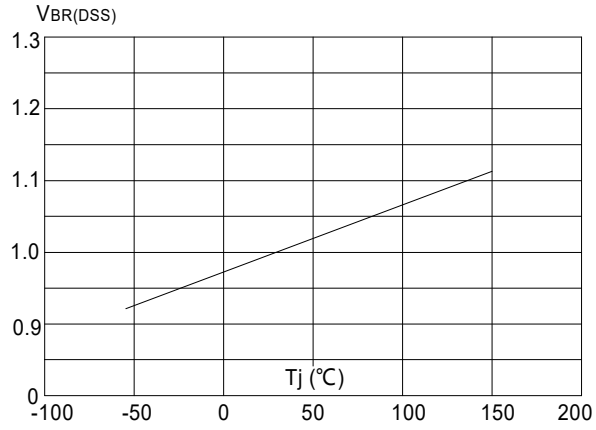


Figure 8: Normalized on Resistance vs. Junction Temperature

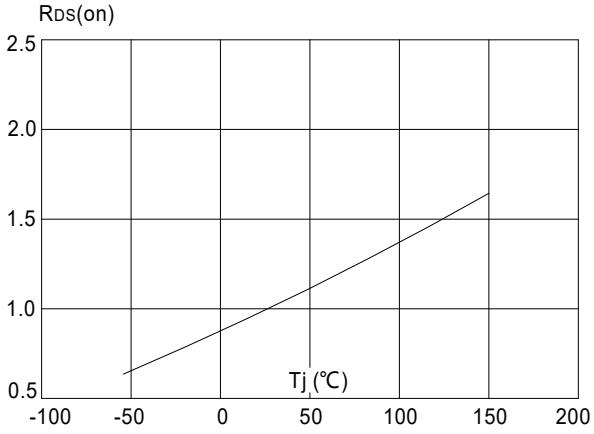


Figure 9: Maximum Safe Operating Area

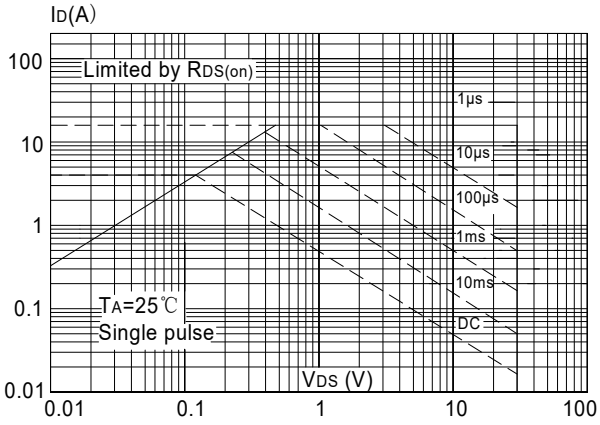


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

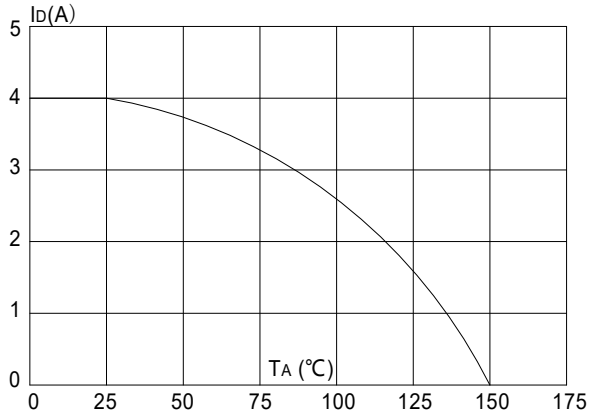
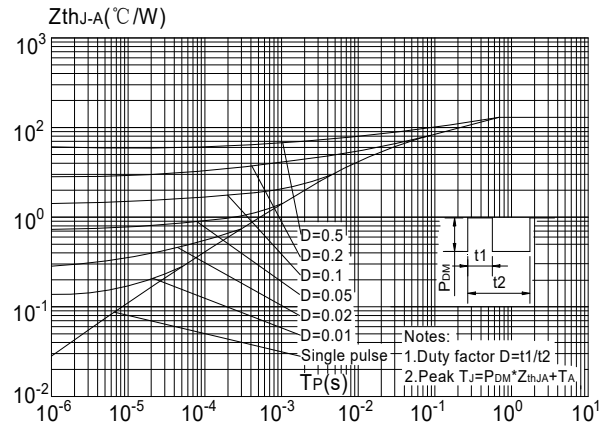
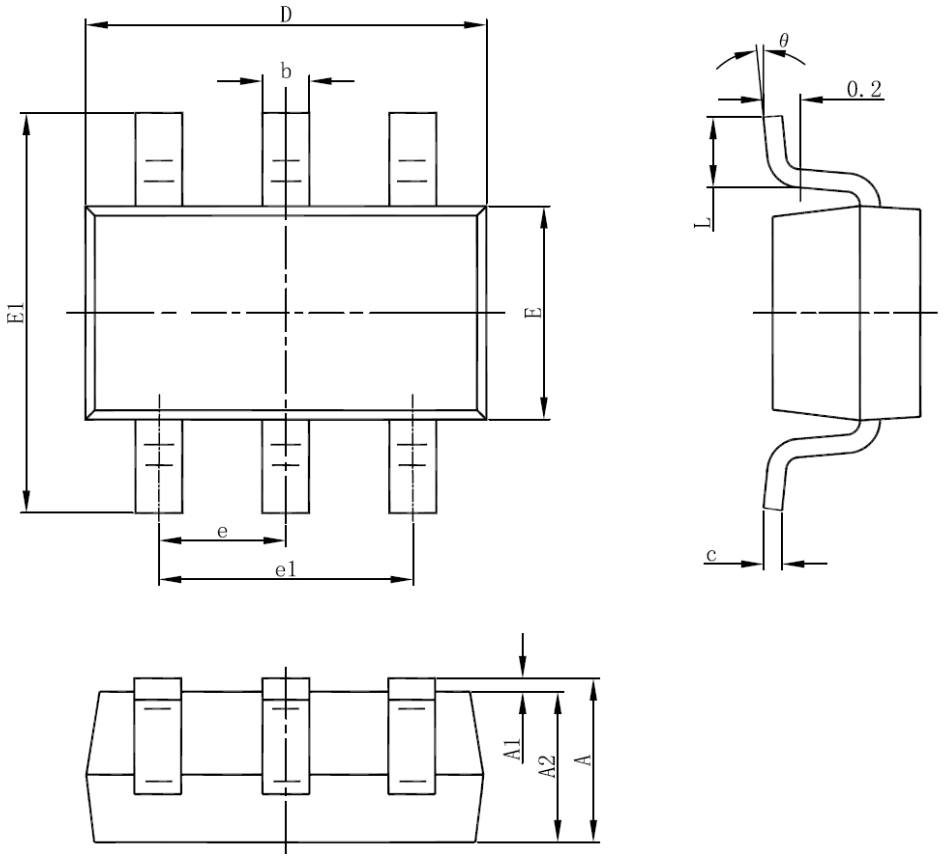


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



SOT-23-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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