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ESD



TVS



TSS



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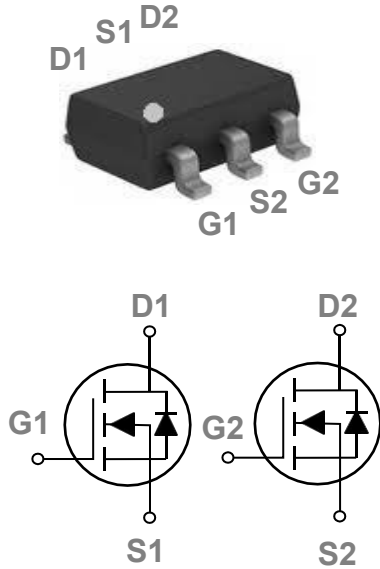
GDT



PLED

Product data sheet

SOT23-6 Dual Pin Configuration



Features

- 20V, 3.5A, $R_{DS(ON)} = 50m\Omega @ V_{GS} = 4.5V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

- Notebook
- Load Switch
- Hand-Held Instruments

BVDSS	RDSON	ID
20V	50mΩ	3.5A

Absolute Maximum Ratings $T_c=25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current – Continuous ($T_A=25^\circ C$)	3.5	A
	Drain Current – Continuous ($T_A=70^\circ C$)	2.9	A
I_{DM}	Drain Current – Pulsed ¹	14.4	A
P_D	Power Dissipation ($T_A=25^\circ C$)	1.25	W
	Power Dissipation – Derate above 25°C	0.01	W/°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	100	°C/W

Electrical Characteristics (T_J=25 °C, unless otherwise noted)
Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	20	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =1mA	---	0.02	---	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =20V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =16V , V _{GS} =0V , T _J =125°C	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 12V , V _{DS} =0V	---	---	± 100	nA

On Characteristics

R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =4.5V , I _D =3A	---	50	60	mΩ
		V _{GS} =2.5V , I _D =2A	---	60	80	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.4	0.8	1.2	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	2	---	mV/°C
g _{fs}	Forward Transconductance	V _{DS} =10V , I _S =2A	---	4.4	---	S

Dynamic and switching Characteristics

Q _g	Total Gate Charge ^{2, 3}	V _{DS} =10V , V _{GS} =4.5V , I _D =1A	---	3.6	---	nC
Q _{gs}	Gate-Source Charge ^{2, 3}		---	0.38	---	
Q _{gd}	Gate-Drain Charge ^{2, 3}		---	0.6	---	
T _{d(on)}	Turn-On Delay Time ^{2, 3}	V _{DD} =10V , V _{GS} =4.5V , R _G =25Ω I _D =1A	---	1.8	---	nS
T _r	Rise Time ^{2, 3}		---	5.6	---	
T _{d(off)}	Turn-Off Delay Time ^{2, 3}		---	11.3	---	
T _f	Fall Time ^{2, 3}		---	3.2	---	
C _{iss}	Input Capacitance	V _{DS} =15V , V _{GS} =0V , F=1MHz	---	180	---	pF
C _{oss}	Output Capacitance		---	32	---	
C _{rss}	Reverse Transfer Capacitance		---	26	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	3.5	A
I _{SM}	Pulsed Source Current		---	---	7.0	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =1A , T _J =25°C	---	---	1.2	V

PACKAGE MECHANICAL DATA

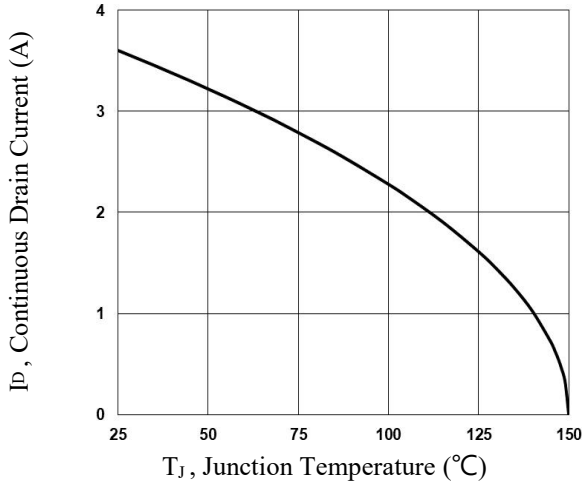


Fig.1 Continuous Drain Current vs. T_J

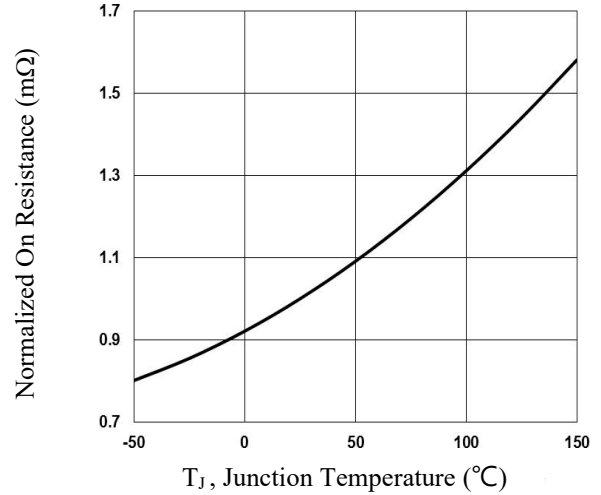


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

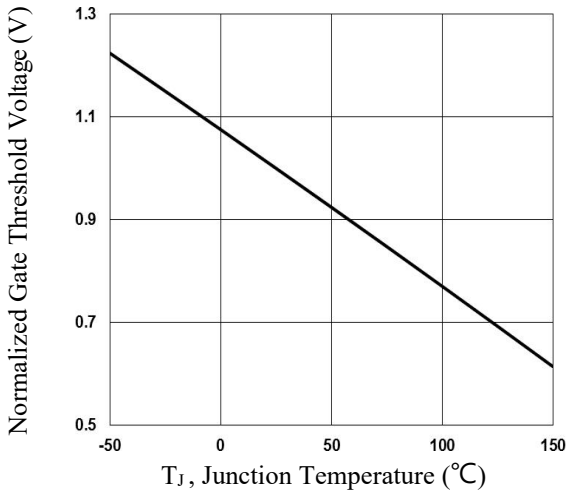


Fig.3 Normalized V_{th} vs. T_J

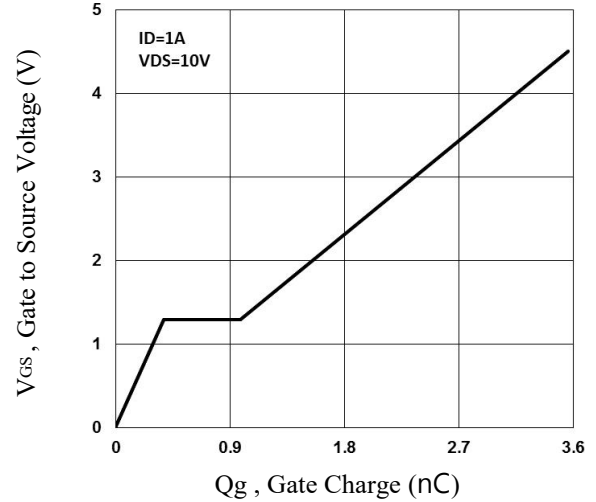


Fig.4 Gate Charge Waveform

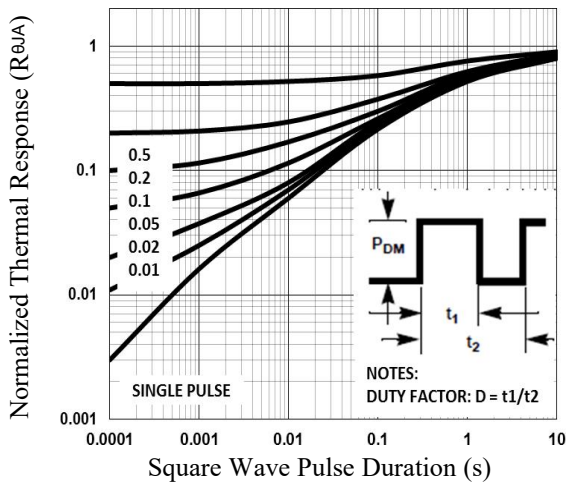


Fig.5 Normalized Transient Impedance

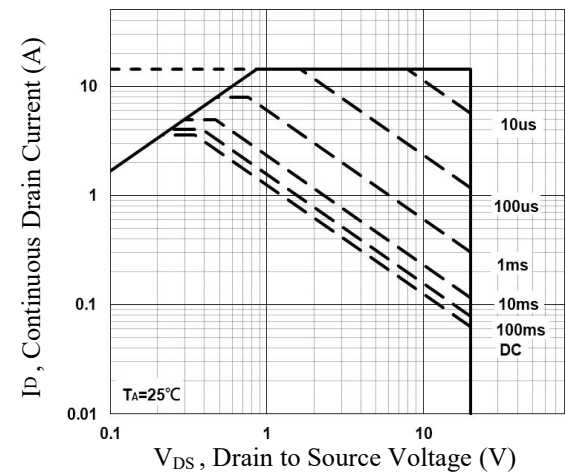
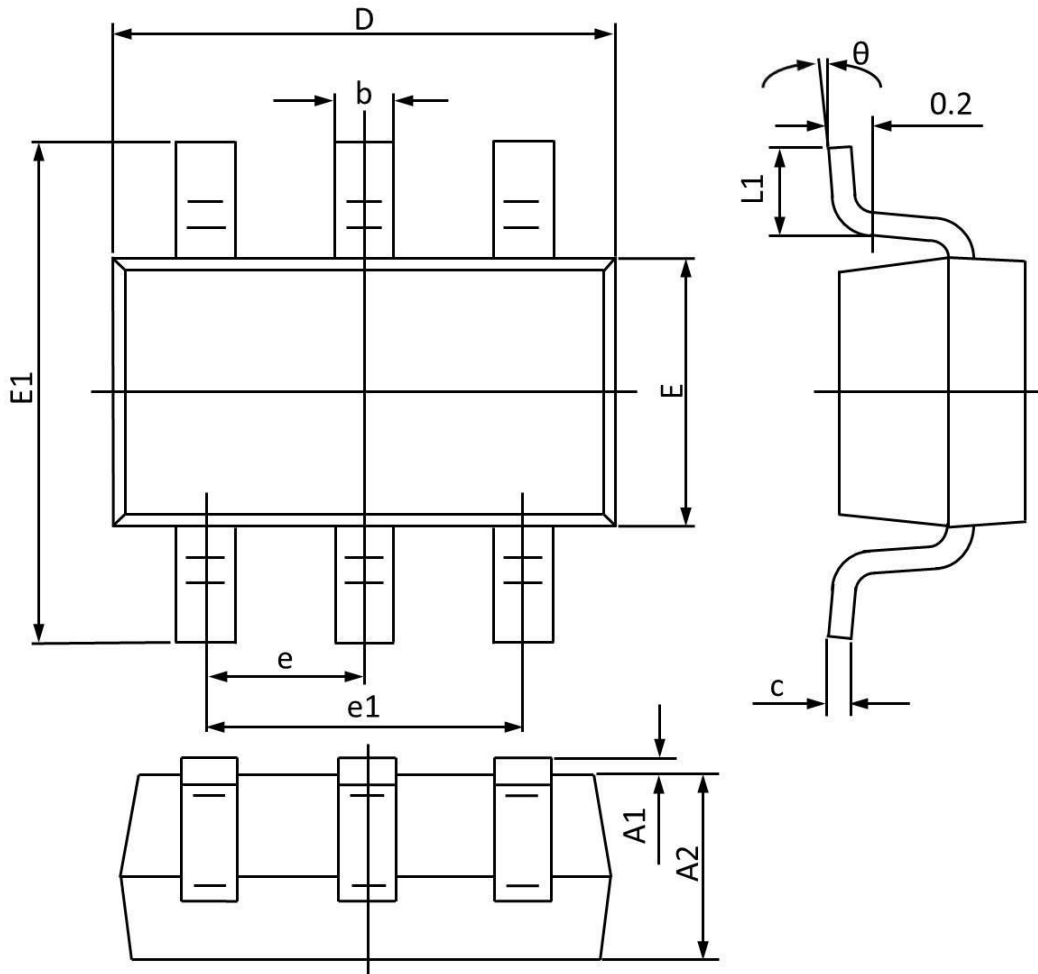


Fig.6 Maximum Safe Operation Area



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A1	0.000	0.100	0.000	0.004
A2	1.000	1.200	0.040	0.047
b	0.300	0.500	0.012	0.019
c	0.047	0.207	0.002	0.008
D	2.800	3.000	0.110	0.118
E	1.500	1.800	0.059	0.070
E1	2.600	3.000	0.103	0.118
e	0.950 TYP		0.037 TYP	
e1	1.900 TYP		0.075 TYP	
L1	0.250	0.550	0.010	0.021
θ	0°	8°	0°	8°

REEL SPECIFICATION

P/N	PKG	QTY
FDC6401N	SOT-23-6	3000

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