

General Description

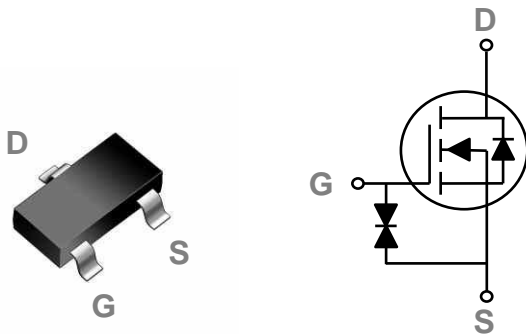
These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

BVDSS	RDSON	ID
100V	5.5Ω	300mA

Features

- 100V,300mA , RDS(ON)=5.5Ω@VGS=10V
- Improved dv/dt capability
- Green Device Available
- G-S ESD Protection Diode Embedded
- ESD protected up to 2KV

SOT23-3S Pin Configuration



Applications

- Notebook
- Load Switch
- Battery Protection
- Hand-held Instruments

Absolute Maximum Ratings Tc=25°C unless otherwise noted

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	100	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current – Continuous (T _A =25°C)	300	mA
	Drain Current – Continuous (T _A =70°C)	240	mA
I _{DM}	Drain Current – Pulsed ¹	1.2	A
P _D	Power Dissipation (T _A =25°C)	1.56	W
	Power Dissipation – Derate above 25°C	12.5	mW/°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 _{θJA}	Thermal Resistance Junction to ambient	---	80	°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 =250μA	100	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C, I _D =1mA	---	0.05	---	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V, V _{GS} =0V, T _J =25°C	---	---	1	μA
		V _{DS} =80V, V _{GS} =0V, T _J =125°C	---	---	1	mA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±20	μA

On Characteristics

R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =0.15A	---	3.6	5.5	Ω
		V _{GS} =4.5V, I _D =0.12A	---	4.2	6.5	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	1.5	2	3	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	-3	---	mV/°C

Dynamic and switching Characteristics

C _{iss}	Input Capacitance	V _{DS} =80V, V _{GS} =0V, F=1MHz	---	60	120	pF
C _{oss}	Output Capacitance		---	18	40	
C _{rss}	Reverse Transfer Capacitance		---	5.2	12	

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	---	---	0.3	A
I _{SM}	Pulsed Source Current		---	---	0.6	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =0.2A, T _J =25°C	---	---	1	V
T _{rr}	Reverse Recovery Time	V _R =100V, I _S =0.1A	---	8.5	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs T _J =25°C	---	5.8	---	nC

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

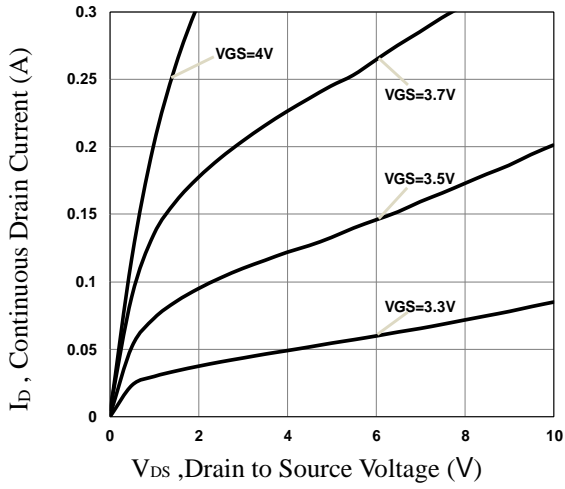


Fig.1 Typical Output Characteristics

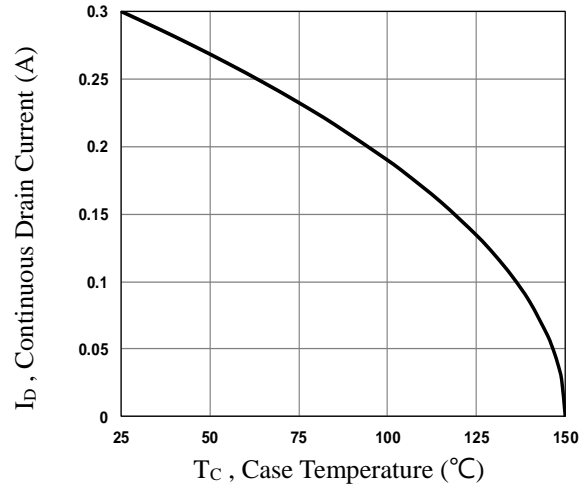


Fig.2 Continuous Drain Current vs. T_c

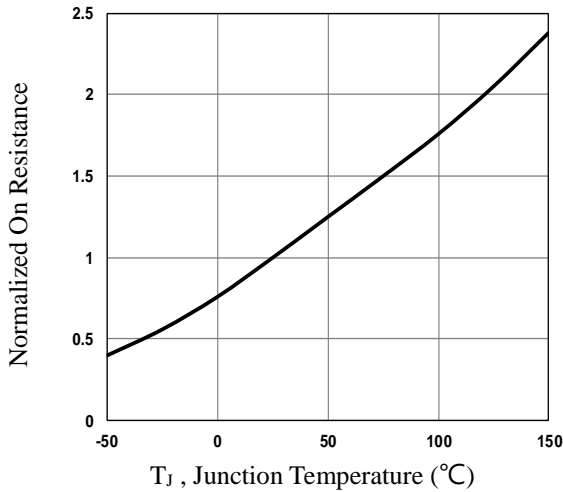


Fig.3 Normalized R_{DS(on)} vs. T_j

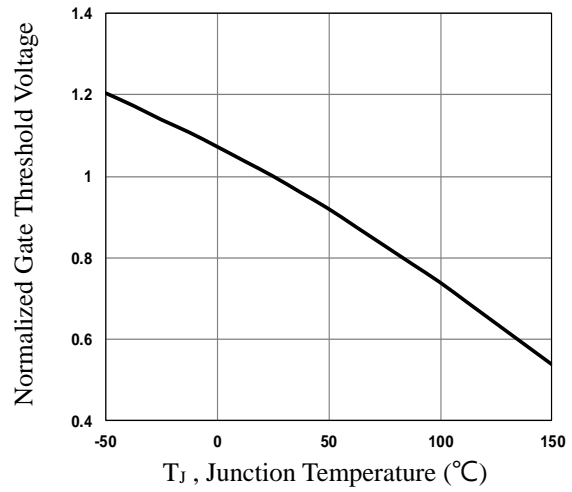


Fig.4 Normalized V_{th} vs. T_j

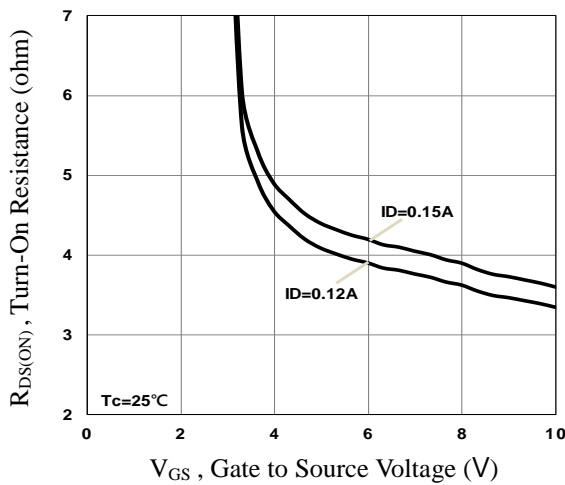


Fig.5 Turn-On Resistance vs. V_{GS}

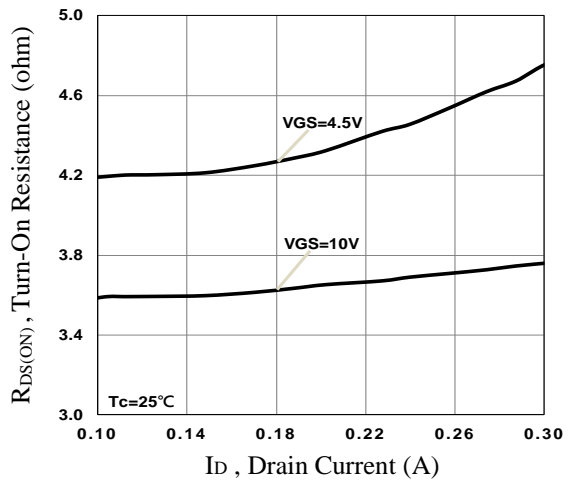


Fig.6 Turn-On Resistance vs. I_D

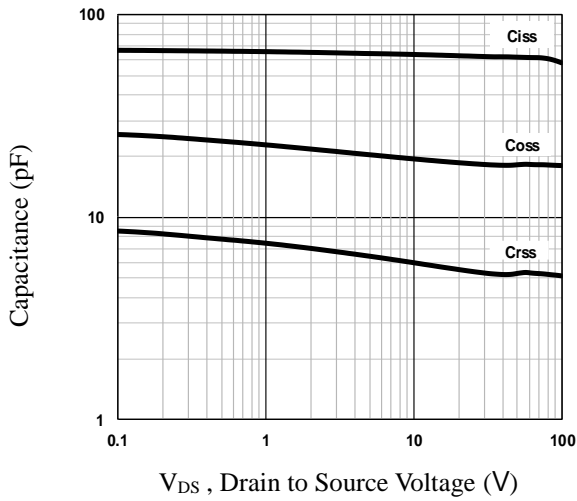


Fig.7 Capacitance Characteristics

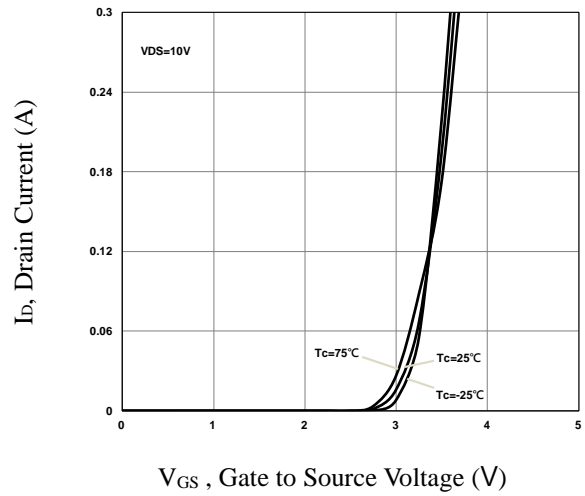


Fig.8 Transfer Characteristics

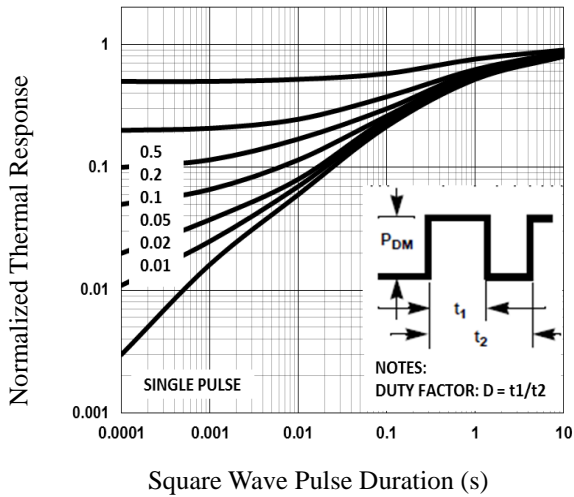


Fig.9 Normalized Transient Impedance

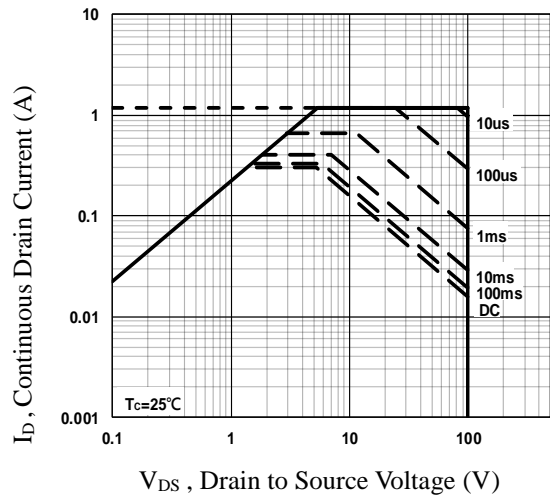
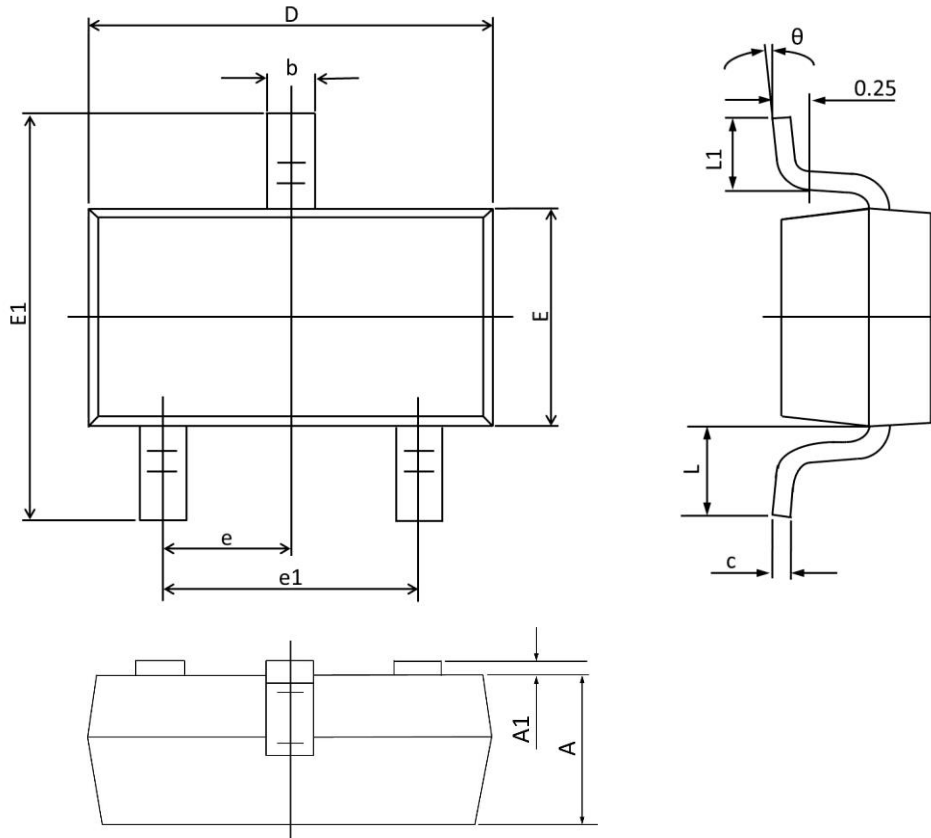


Fig.10 Maximum Safe Operation Area

SOT23-3S PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.001	0.100	0.000	0.004
b	0.300	0.500	0.012	0.020
c	0.080	0.180	0.003	0.008
D	2.700	3.100	0.106	0.122
E	1.100	1.500	0.043	0.059
E1	2.100	2.640	0.080	0.104
e	0.950 TYP.		0.037 TYP.	
e1	1.780	2.040	0.070	0.080
L	0.550 REF.		0.022 REF.	
L1	0.100	0.500	0.004	0.020
θ	1°	10°	1°	10°