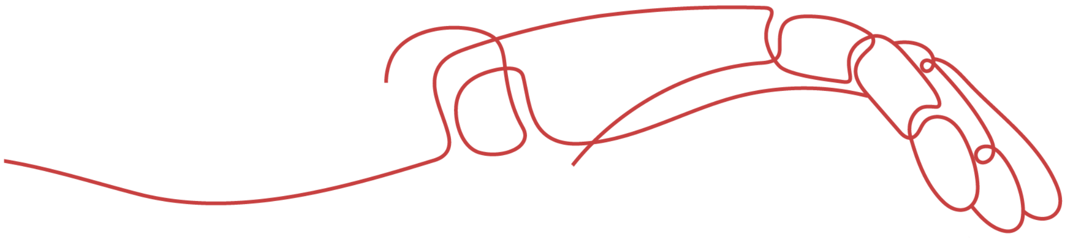
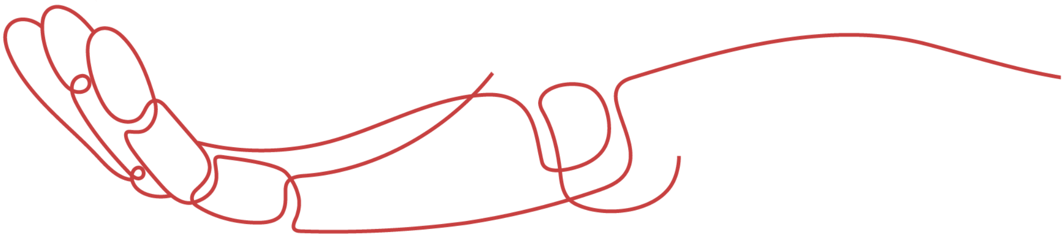


PRODUCT DATA SHEET



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Datasheet   Resources   Samples

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

General Description

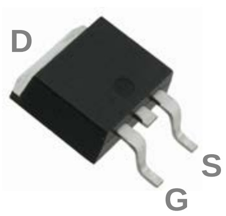
These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These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

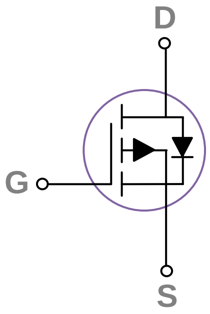
BVDSS	RDSON	ID
-55V	110mΩ	-8A

Features

- *-55V,-8A, RDS(ON) =110mΩ@VGS = -10V*
- *Improved dv/dt capability*
- *Fast switching*
- *Green Device Available*

TO252 Pin Configuration





Applications

- *Motor Drive*
- *Power Tools*
- *LED Lighting*

Absolute Maximum Ratings **Tc=25℃ unless otherwise noted**

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-55	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_C=25˚C)	-8	A
	Drain Current – Continuous (T_C=100˚C)	-4.4	A
I_{DM}	Drain Current – Pulsed[1]	-28	A
EAS	Single Pulse Avalanche Energy[2]	32	mJ
IAS	Single Pulse Avalanche Current[2]	-8	A
P_D	Power Dissipation (T_C=25˚C)	15.6	W
	Power Dissipation – Derate above 25˚C	0.125	W/˚C
T_{STG}	Storage Temperature Range	-50 to 150	˚C
T_J	Operating Junction Temperature Range	-50 to 125	˚C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{θJA}$	Thermal Resistance Junction to ambient	---	62	˚C/W
$R_{θJC}$	Thermal Resistance Junction to Case	---	8	˚C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-55	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=-1mA	---	-0.05	---	V/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-55V , V_{GS}=0V , T_J=25℃	---	---	-1	uA
		V_{DS}=-45V , V_{GS}=0V , T_J=125℃	---	---	-10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±10	uA

On Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-4.5A	---	110	150	mΩ
		V_{GS}=-4.5V , I_D=-4.5A	---	155	180	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D=-250uA	-1.0	-2.1	-3.0	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	5	---	mV/℃
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-4.5A	---	3	---	S

Dynamic and switching Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q_g	Total Gate Charge[3,4]	V_{DS}=-25V , V_{GS}=-5V , I_D=-4.5A	---	12	---	nC
Q_{gs}	Gate-Source Charge[3,4]		---	2.2	---	
Q_{gd}	Gate-Drain Charge[3,4]		---	2.2	---	
$T_{d(on)}$	Turn-On Delay Time[3,4]	V_{DD}=-25V , V_{GS}=-10V , R_G=10Ω I_D=-2A	---	8	---	ns
T_r	Rise Time[3,4]		---	8	---	
$T_{d(off)}$	Turn-Off Delay Time[3,4]		---	35	---	
T_f	Fall Time[3,4]		---	8	---	
C_{iss}	Input Capacitance	V_{DS}=-10V , V_{GS}=0V , F=1MHz	---	560	---	pF
C_{oss}	Output Capacitance		---	90	---	
C_{rss}	Reverse Transfer Capacitance		---	45	---	

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	---	---	-10	A
I_{SM}	Pulsed Source Current		---	---	20	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-4.5A , T_J=25℃	---	---	-1.2	V

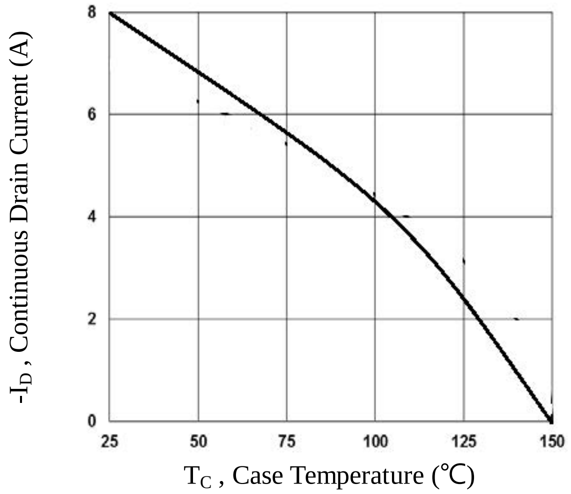


Fig.1 Continuous Drain Current vs. T_C

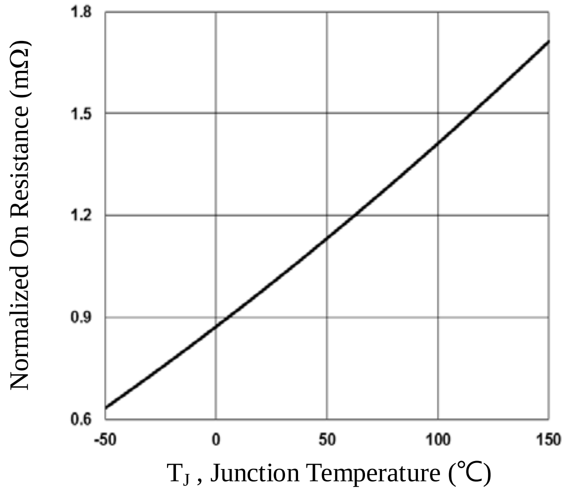


Fig.2 Normalized RDSON vs. T_J

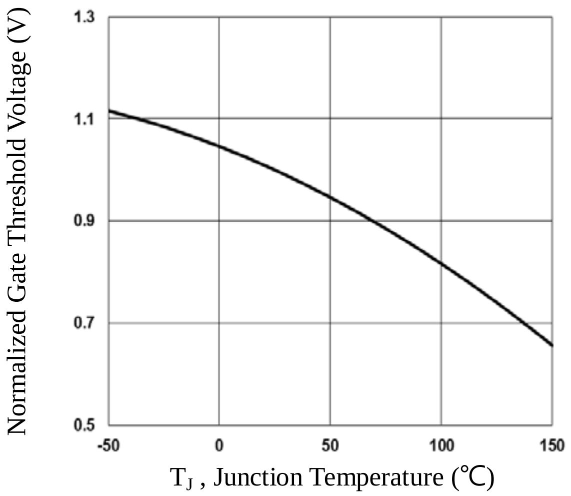


Fig.3 Normalized V_{th} vs. T_J

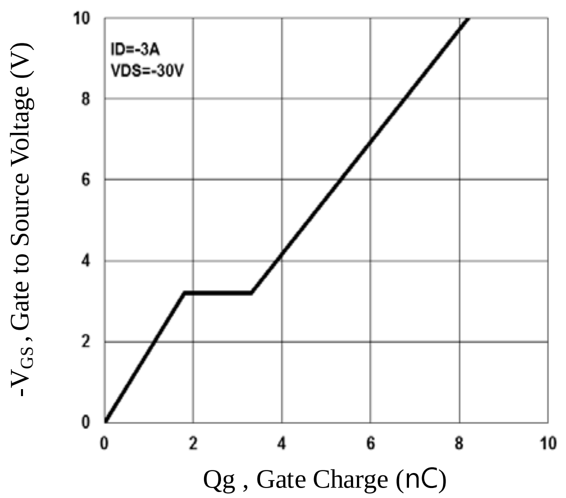


Fig.4 Gate Charge Waveform

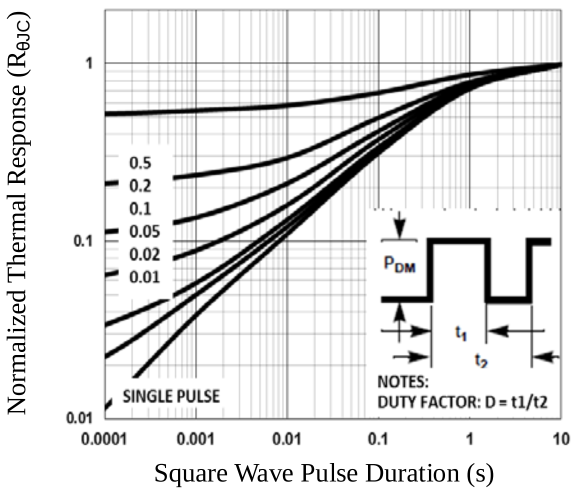


Fig.5 Normalized Transient Impedance

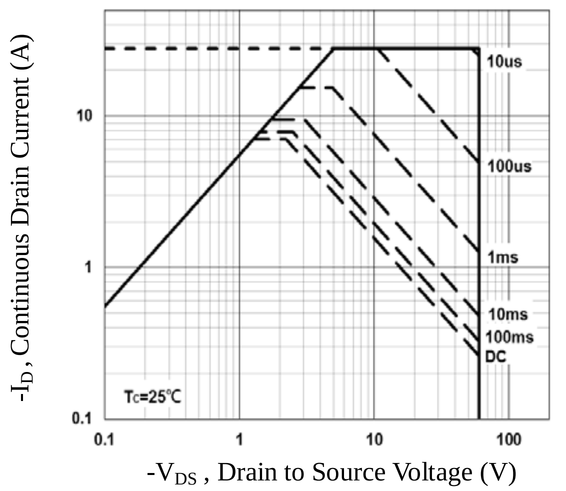
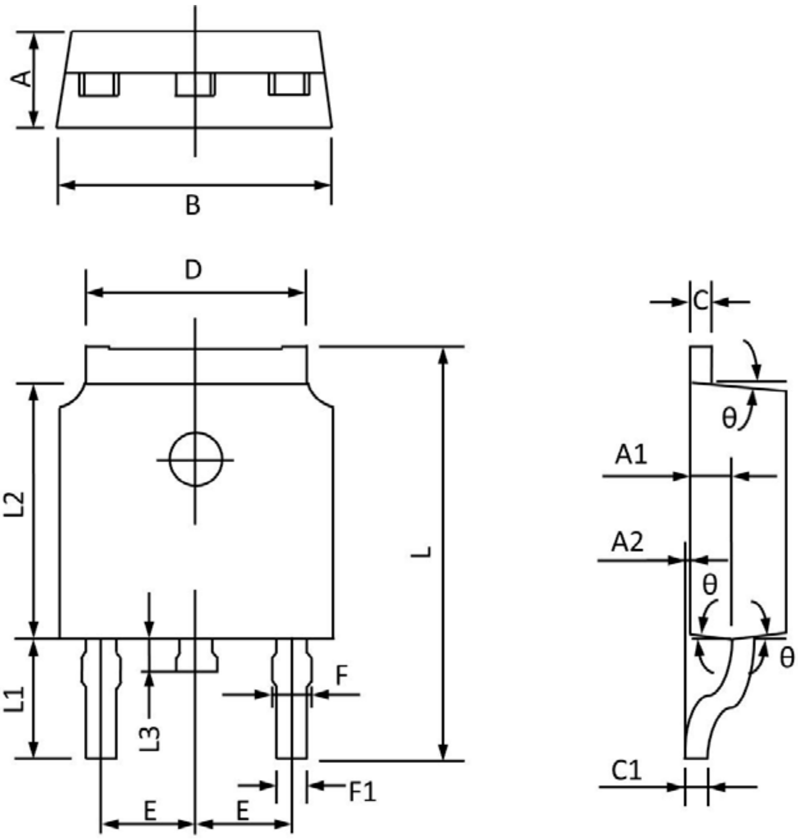


Fig.6 Maximum Safe Operation Area

TO252 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.20	2.40	0.087	0.094
A1	0.91	1.11	0.036	0.044
A2	0.00	0.15	0.000	0.006
B	6.50	6.70	0.256	0.264
C	0.46	0.580	0.018	0.230
C1	0.46	0.580	0.018	0.030
D	5.10	5.46	0.201	0.215
E	2.186	2.386	0.086	0.094
F	0.74	0.94	0.029	0.037
F1	0.660	0.860	0.026	0.034
L	9.80	10.40	0.386	0.409
L1	2.9REF		0.114REF	
L2	6.00	6.20	0.236	0.244
L3	0.60	1.00	0.024	0.039
θ	3°	9°	3°	9°

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