

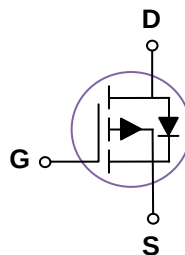
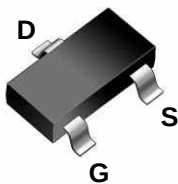
General Description

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.

Features

V_{DS}	-17V
I_D (at $V_{GS}=-4.5V$)	-6.0A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	23m Ω (Typ)

SOT23



Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V _{DS}	-17	V
Gate-Source Voltage		V _{GS}	±10	V
Drain Current-Continuous	TC=25°C	I _D	-6.0	A
	TC=70°C	I _D	-4.7	A
Maximum Power Dissipation		P _D	1.2	W
Drain Current – Pulsed1		I _{DM}	-24	A
Junction and Storage Temperature Range		T _J ,T _{STG}	-55 To 150	°C

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance junction-case	$R_{\theta JC}$		80	$^\circ\text{C} / \text{W}$
Thermal Resistance junction-to-Ambient	$R_{\theta JA}$		125	$^\circ\text{C} / \text{W}$

Electrical Characteristics (TJ=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-17	-20		V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-17V,V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V,V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =-250μA	-0.4	-0.6	-1.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-5A		23	30	mΩ
		V _{GS} =-2.5V, I _D =-3A		31	40	mΩ
		V _{GS} =-1.8V, I _D =-2A		44	56	mΩ
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{DS} =-9V,V _{GS} =0V, F=1.0MHz		980		pF
C _{oss}	Output Capacitance			130		pF
C _{rss}	Reverse Transfer Capacitance			110		pF
SWITCHING PARAMETERS						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-9V,I _D =-1A, V _{GS} =-4.5V, R _G =25Ω		8		nS
t _r	Turn-on Rise Time			36		nS
t _{d(off)}	Turn-Off Delay Time			75		nS
t _f	Turn-Off Fall Time			55		nS
Q _g	Total Gate Charge	V _{DS} =-9V,I _D =-5A, V _{GS} =-4.5V		11		nC
Q _{gs}	Gate-Source Charge			2.2		nC
Q _{gd}	Gate-Drain Charge			2.5		nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _{SD} =-1A		0.72	1.4	V

Note:

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

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

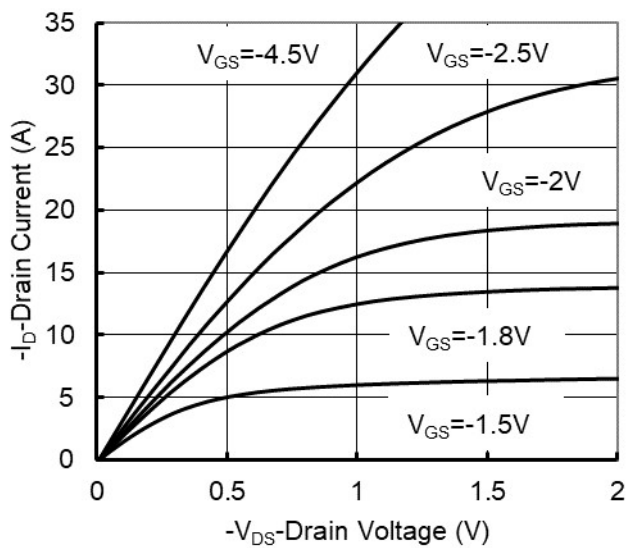


Figure1. Output Characteristics

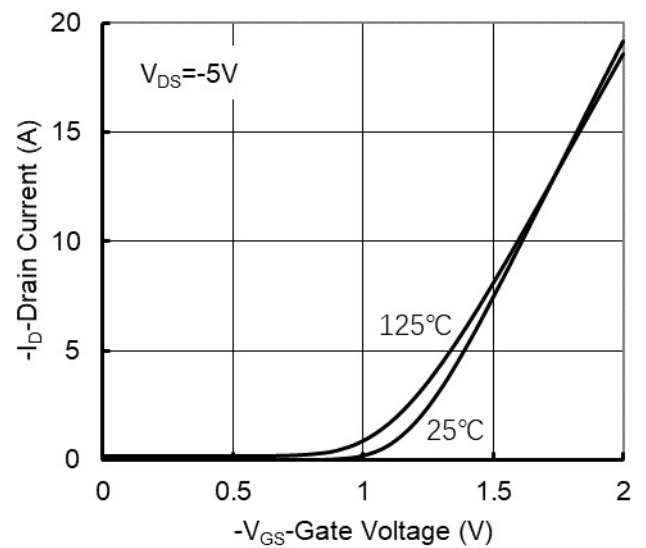


Figure2. Transfer Characteristics

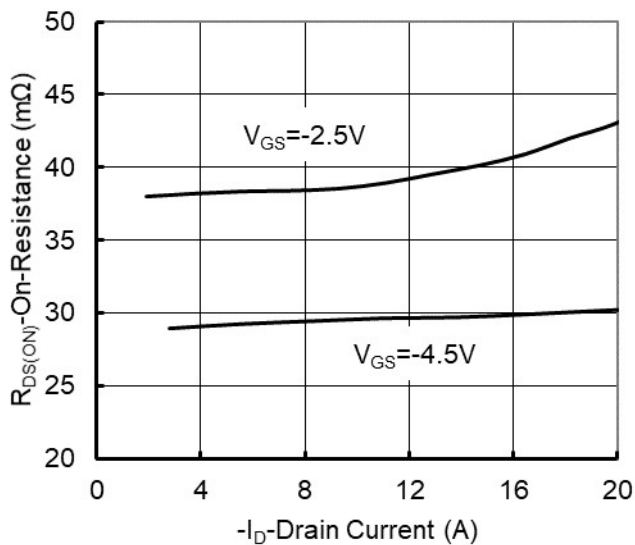


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

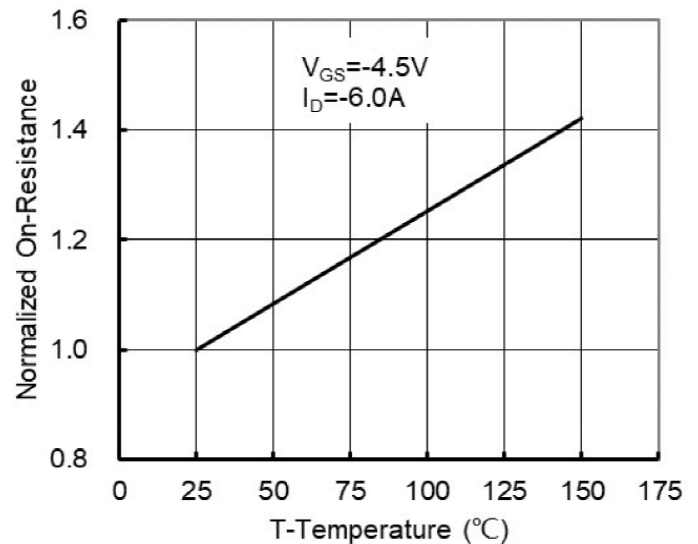


Figure 4: On-Resistance vs. Junction Temperature

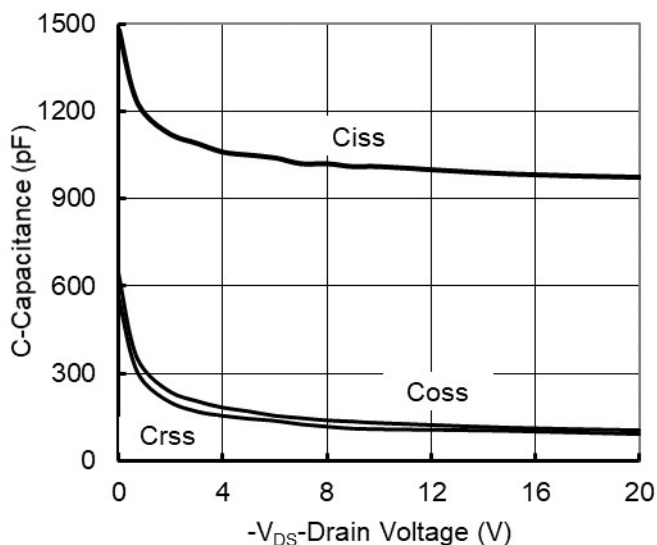


Figure5. Capacitance Characteristics

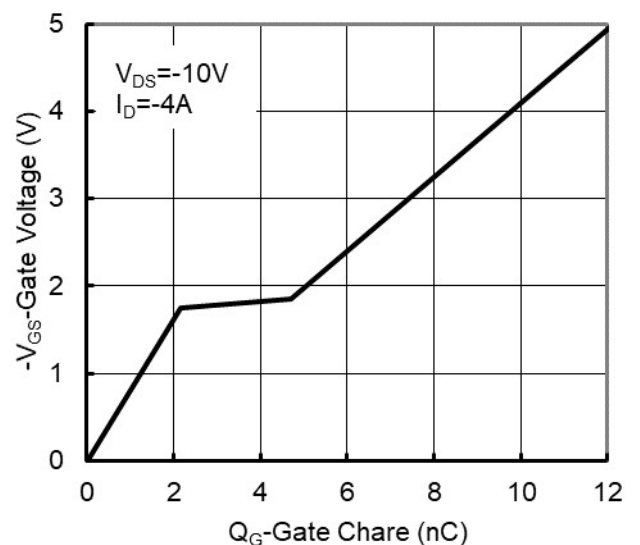


Figure6. Gate Charge

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

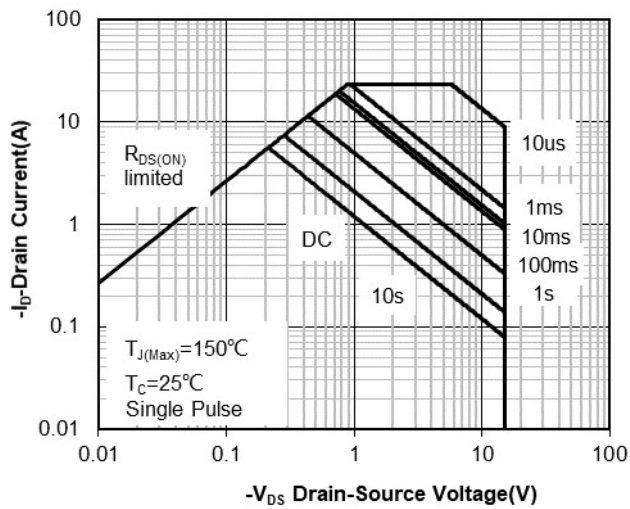


Figure7. Safe Operation Area

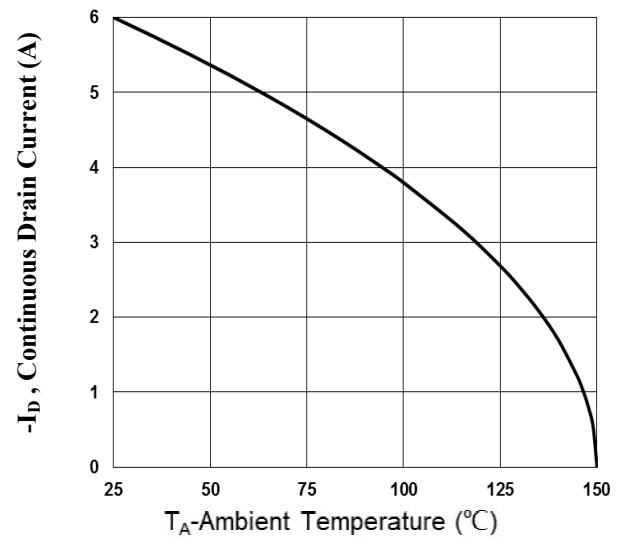


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

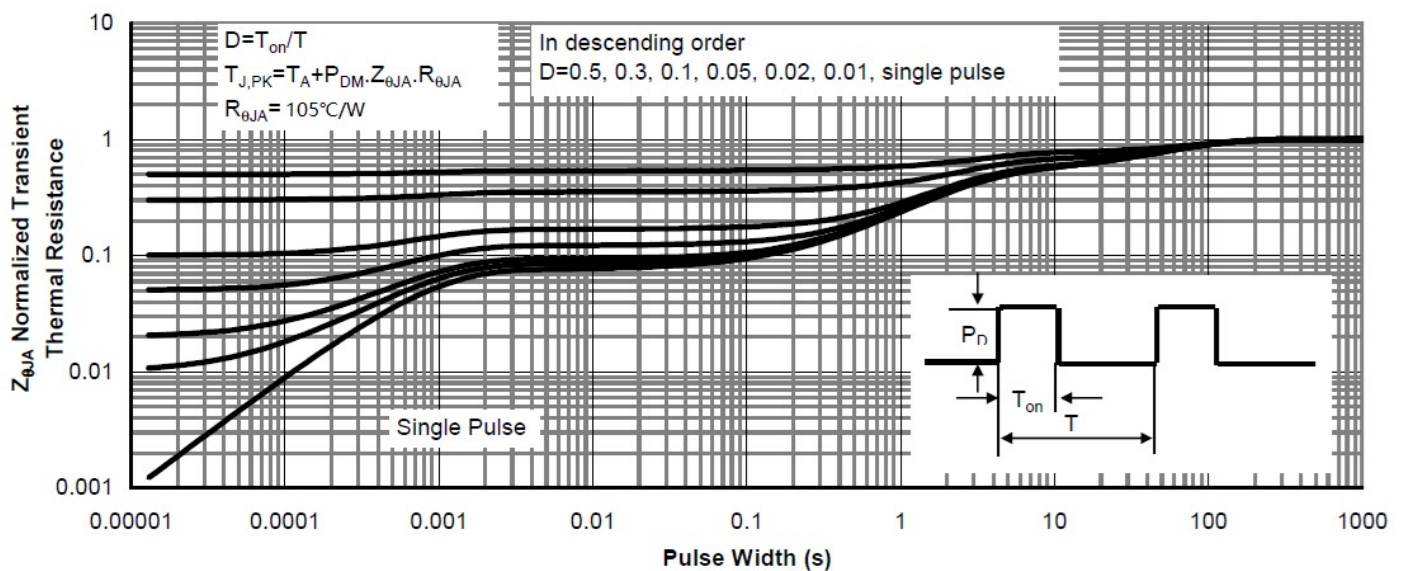
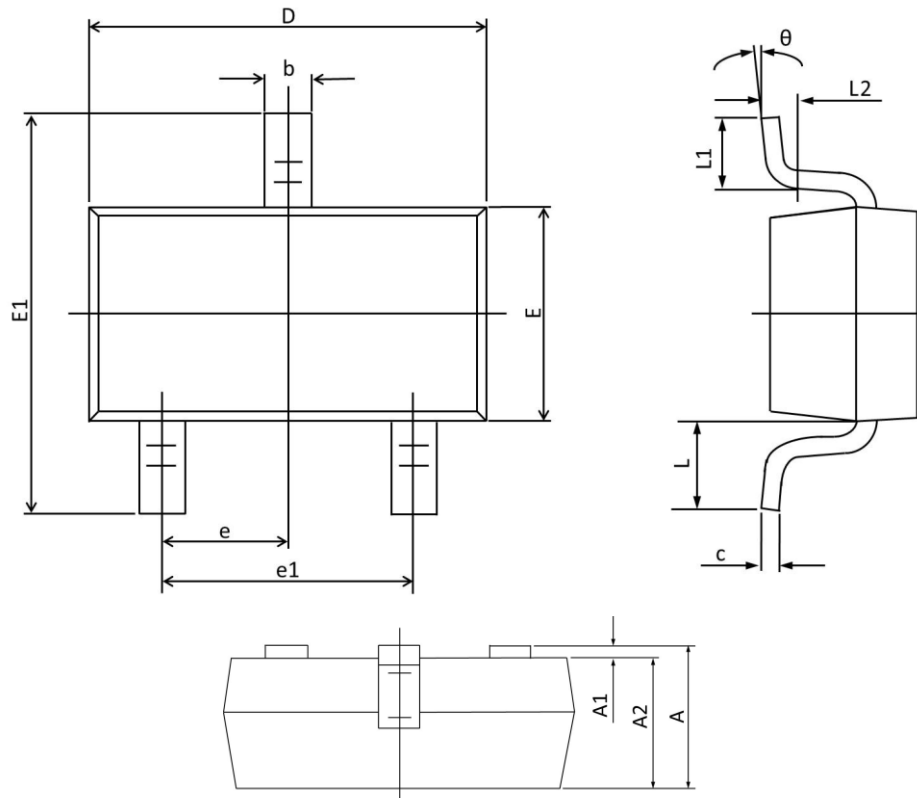


Figure9. Normalized Maximum Transient Thermal Impedance

SOT23 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Max	Min	Max	Min
A	1.150	0.900	0.045	0.035
A1	0.100	0.000	0.004	0.000
A2	1.050	0.900	0.041	0.035
b	0.500	0.300	0.020	0.012
c	0.150	0.080	0.006	0.003
D	3.000	2.800	0.118	0.110
E	1.400	1.200	0.055	0.047
E1	2.550	2.250	0.100	0.089
e	0.95 TYP.		0.037 TYP.	
e1	2.000	1.800	0.079	0.071
L	0.55 REF.		0.022 REF.	
L1	0.500	0.300	0.020	0.012
L2	0.25 TYP.		0.01 TYP.	
θ	8°	0°	8°	0°