

General Description

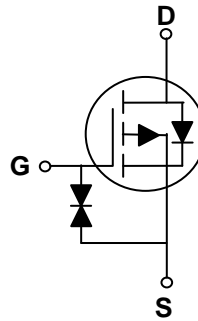
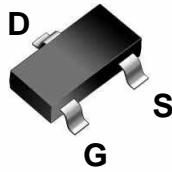
These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These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

Features

V_{DS}	-20V
I_D (at $V_{GS}=-4.5V$)	-0.5A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	580mΩ(Typ)

ESD Protected Up to 2.0KV (HBM)

SOT23



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

Parameter	Symbol	Maximum	Units	
Drain-Source Voltage	V_{DS}	-20	V	
Gate-Source Voltage	V_{GS}	±12	V	
Drain Current-Continuous	TC=25°C	I_D	-0.5	A
	TC=70°C	I_D	-0.4	A
Maximum Power Dissipation	P_D	0.35	W	
Drain Current – Pulsed1	I_{DM}	-2.6	A	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	°C	

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance junction-to-solder point	$R_{\theta JSP}$		40	°C /W
Thermal Resistance junction-to-Ambient	$R_{\theta JA}$		350	°C /W

Electrical Characteristics (T_J=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	-20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V			±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.3	-0.6	-1.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-0.5A		580	850	mΩ
		V _{GS} =-2.5V, I _D =-0.3A		850	1200	mΩ
		V _{GS} =-1.8V, I _D =-0.2A		1350	2000	mΩ
I _S	Maximum Body-Diode Continuous Current				-0.5	A
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, F=1.0MHz		71		pF
C _{oss}	Output Capacitance			20		pF
C _{rss}	Reverse Transfer Capacitance			15		pF
SWITCHING PARAMETERS						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-10V, I _D =-0.2A, V _{GS} =-4.5V, R _G =10Ω		4		nS
t _r	Turn-on Rise Time			19		nS
t _{d(off)}	Turn-Off Delay Time			16		nS
t _f	Turn-Off Fall Time			25		nS
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-0.2A, V _{GS} =-4.5V		1.2		nC
Q _{gs}	Gate-Source Charge			0.37		nC
Q _{gd}	Gate-Drain Charge			0.27		nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =-1A		0.7	1.2	V

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.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

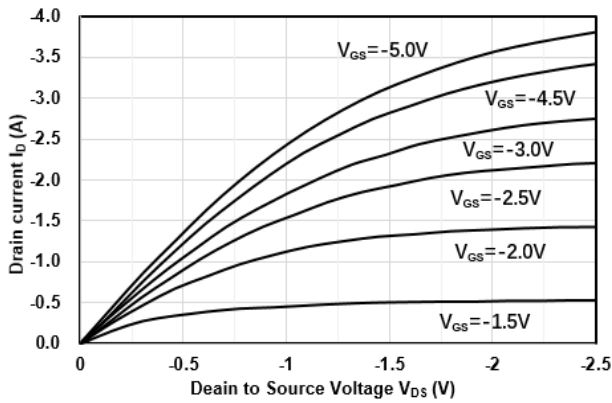


Figure1. Output Characteristics

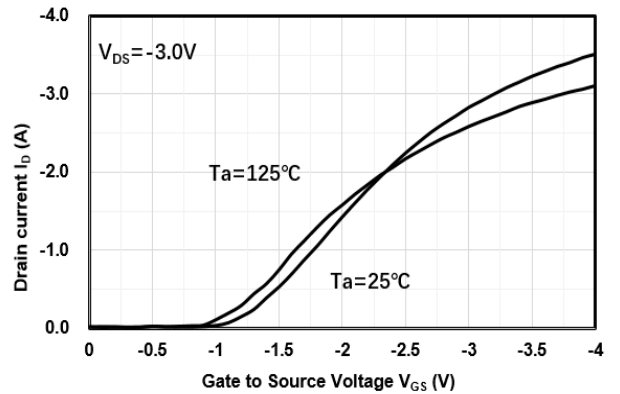


Figure2. Transfer Characteristics

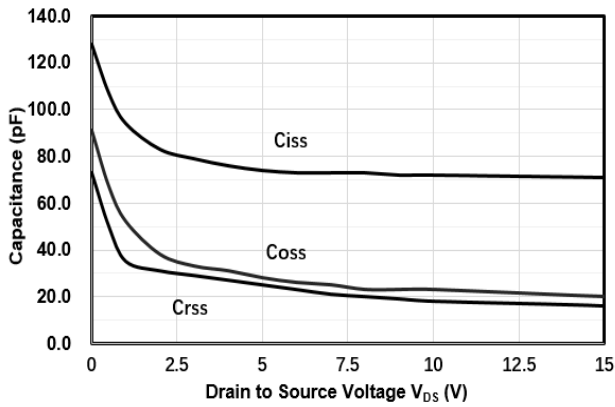


Figure3. Capacitance Characteristics

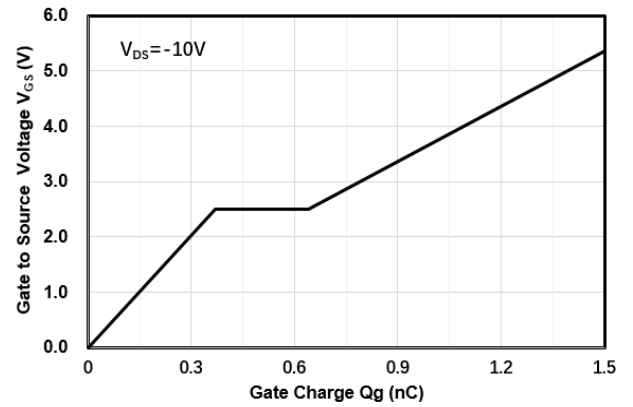


Figure4. Gate Charge

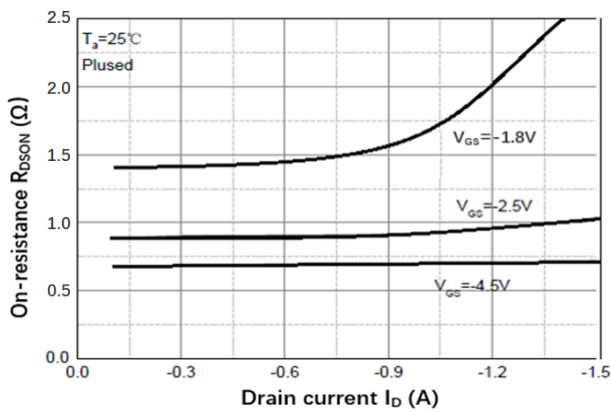


Figure5. Drain-Source on Resistance

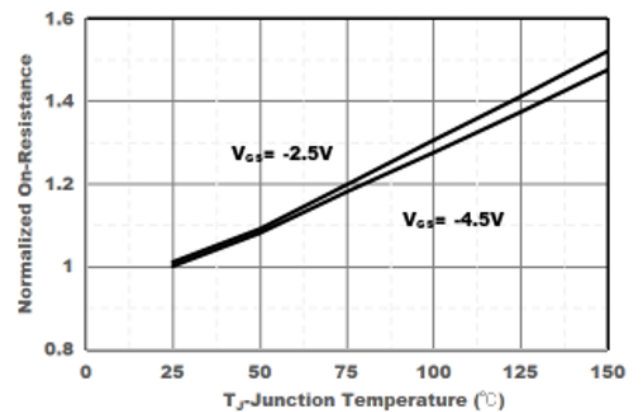


Figure6. Drain-Source on Resistance

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

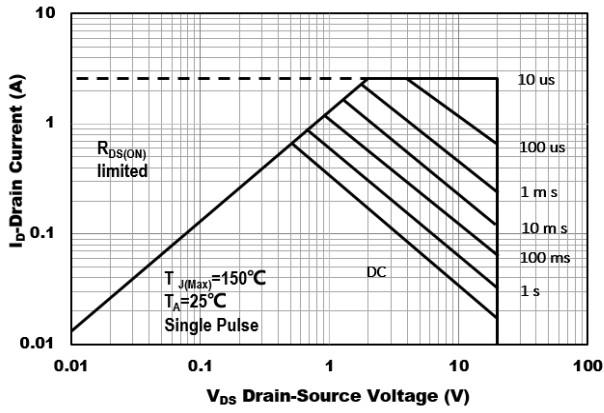


Figure7. Safe Operation Area

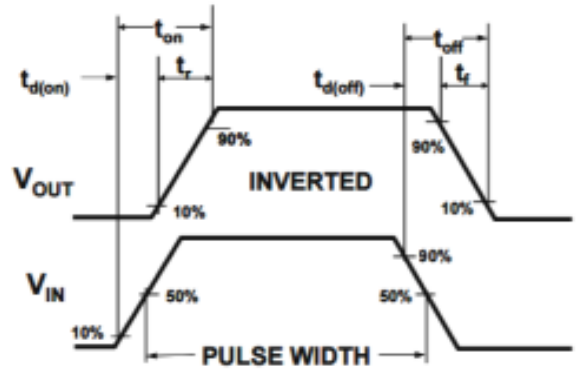
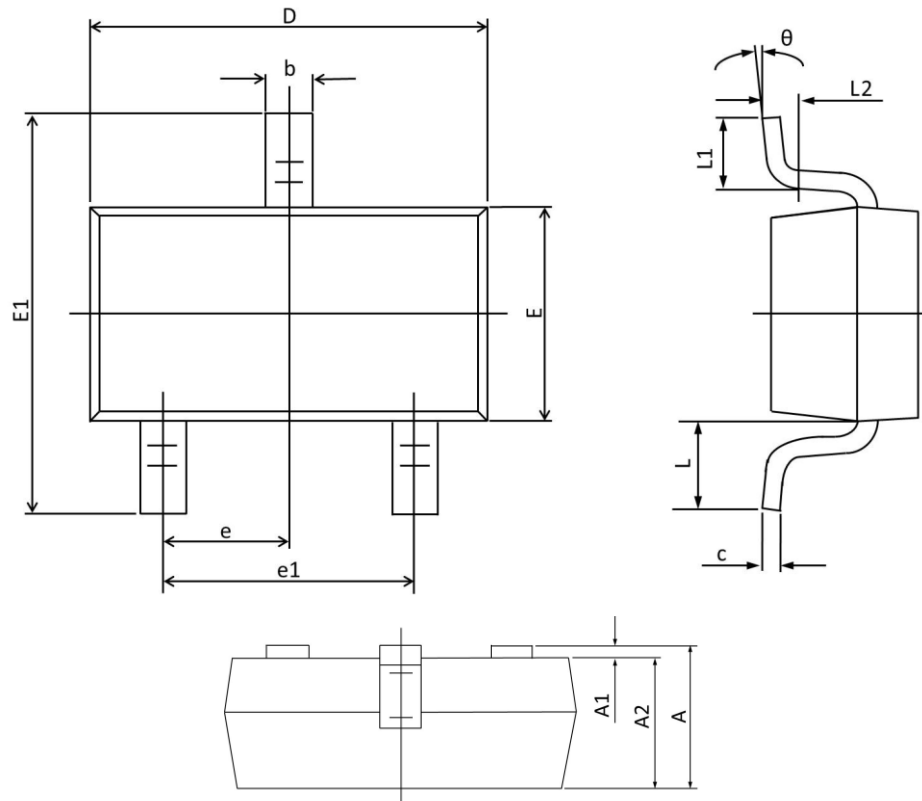


Figure8. Switching wave

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°