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.

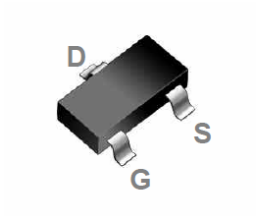
Features

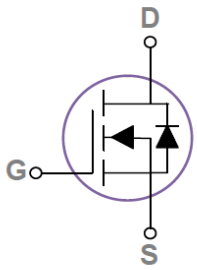
◆100V / 2A, RDS(ON) = 200mΩ @ VGS =10V
◆Improved dv/dt capability
◆Fast switching
◆Green Device Available
◆100% EAS Guaranteed
◆SOT-23 package design

Applications

◆Networking
◆Load Switch
◆LED Applications

Pin Configuration





Absolute Maximum Ratings (T_C=25℃ Unless Otherwise Noted)

Parameter		Symbol	Maximum	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	T_C = 25℃	I_D	2	A
	T_C = 100℃		1.3	
Pulsed Drain Current		I_{DM}	8	A
Power Dissipation	T_C = 25℃	P_D	1.56	W
	Derate above 25℃		0.012	W/℃
Operating junction temperature range		T_J	- 55 to 150	°C
Storage temperature range		T_{STG}	- 55 to 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Maximum	Unit
Junction-to-Ambient	$R_{\theta JA}$	80	°C/W

Ordering Information

Device	Package	REMARK
ECDN0910S	SOT-23	3000PCS / Reel

Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250μA	1.2	1.8	2.5	V
Gate Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ± 20 V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =100V, V_{GS} = 0V, T_J = 25 ℃	-	-	1	μA
		V_{DS} =80V, V_{GS} = 0V, T_J = 125 ℃	-	-	10	
Forward Trans conductance	g_{fs}	V_{DS} = 10V, I_D= 1A	-	5	-	S
Drain-Source On Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D =2A	-	161	200	mΩ
		V_{GS} = 4.5V, I_D =1A	-	169	210	
Dynamic Parameters						
Input Cap.	C_{iss}	V_{DS} = 50V, V_{GS} = 0V, F = 1MHz	-	820	1190	pF
Output Cap.	C_{oss}		-	35	55	
Reverse Transfer Cap.	C_{rss}		-	20	30	
Total Gate Charge	Q_g	V_{DS} = 50V, V_{GS} = 10V, I_D =2A	-	13.4	21	nC
Gate-Source Charge	Q_{gs}		-	2.9	6	
Gate-Drain Charge	Q_{gd}		-	1.7	4	
Turn-On Time	$T_{D(ON)}$	V_{DD} =30V, V_{GS} =10V , R_G =3.3Ω, I_D =1A	-	1.6	3	nS
	t_r		-	6.6	13	
Turn-Off Time	$T_{D(OFF)}$		-	11.5	22	
	t_f		-	3.6	7	
Gate resistance	Rg	V_{GS}=0V, V_{DS}=0V, F=1MHz	-	1.3	2.6	Ω
Continuous Source Current	I_S	V_G=V_D=0V , Force Current	-	-	2	A
Pulsed Source Current	I_{SM}		-	-	8	A
Diode Forward Voltage	V_{SD}	I_S = 1A	-	-	1	V

Typical Characterictics

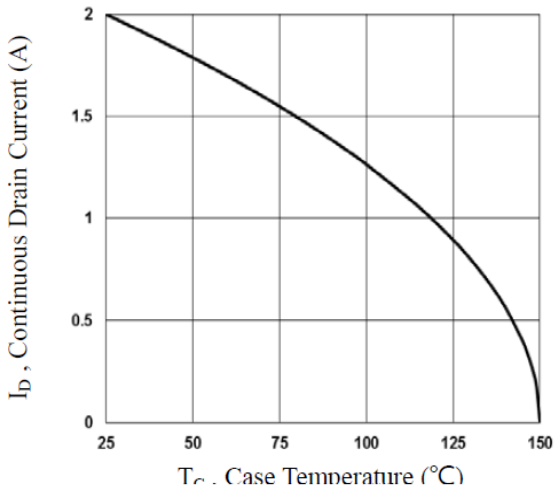


Fig.1 Continuous Drain Current vs. T_C

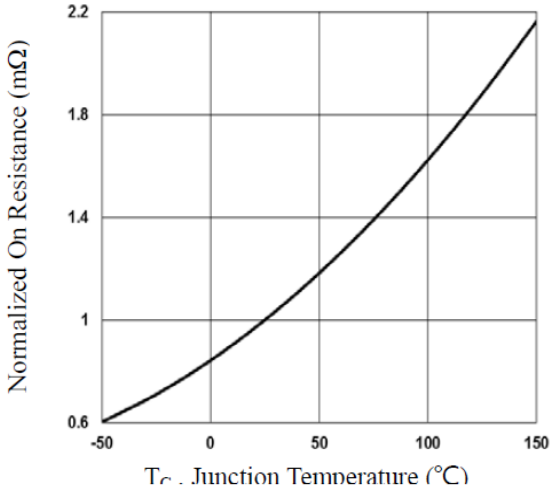


Fig.2 Continuous Drain Current vs. T_C

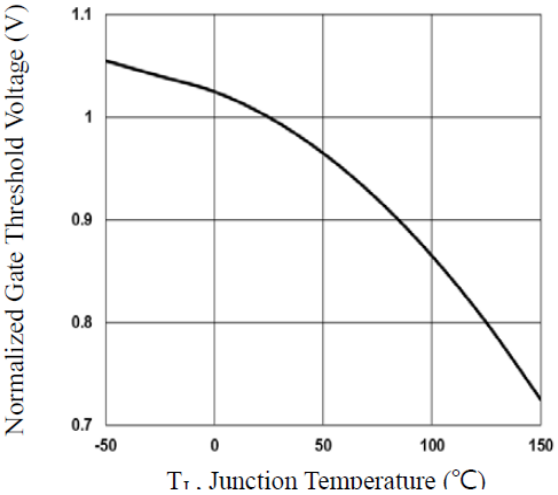


Fig.3 Normalized V_{th} vs. T_J

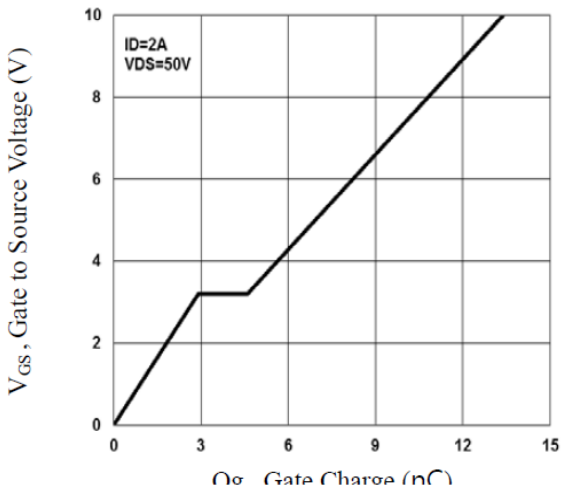


Fig.4 Gate Charge Waveform

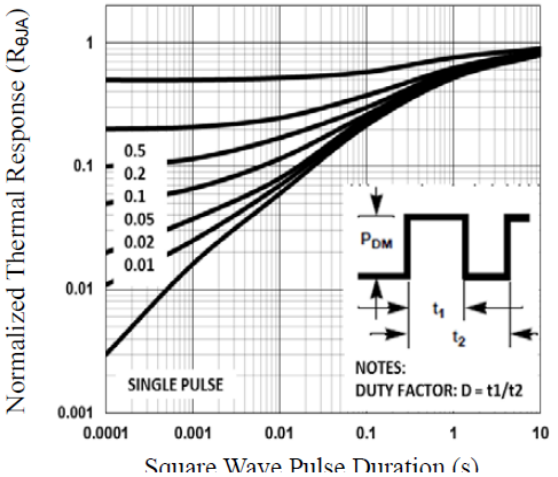


Fig.5 Normalized Transient Impedance

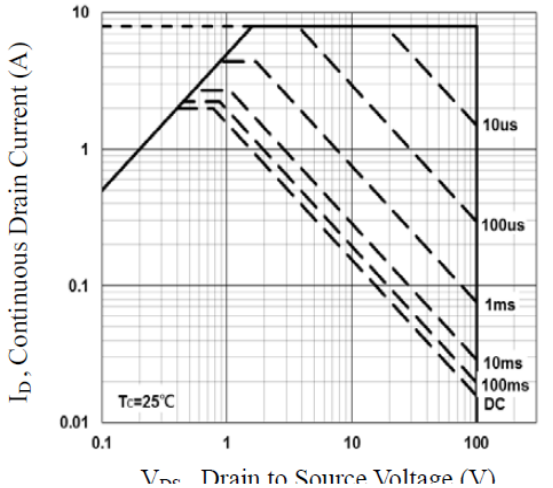


Fig.6 Maximum Safe Operation Area

Typical Characterictics

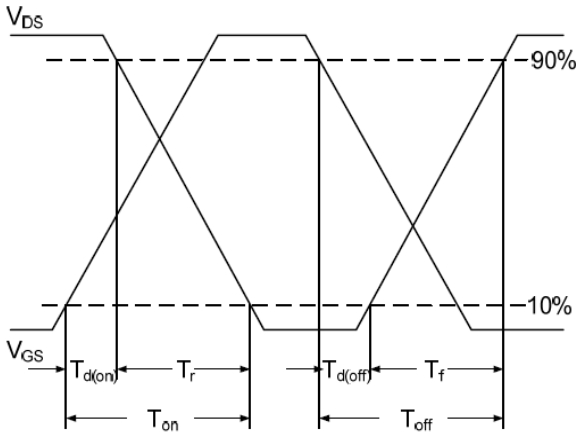


Fig.7 Switching Time Waveform

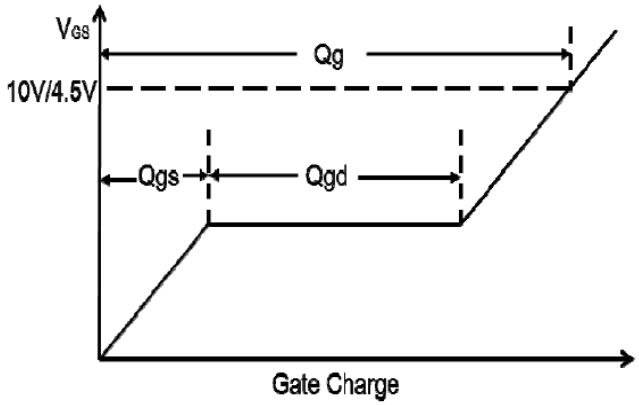
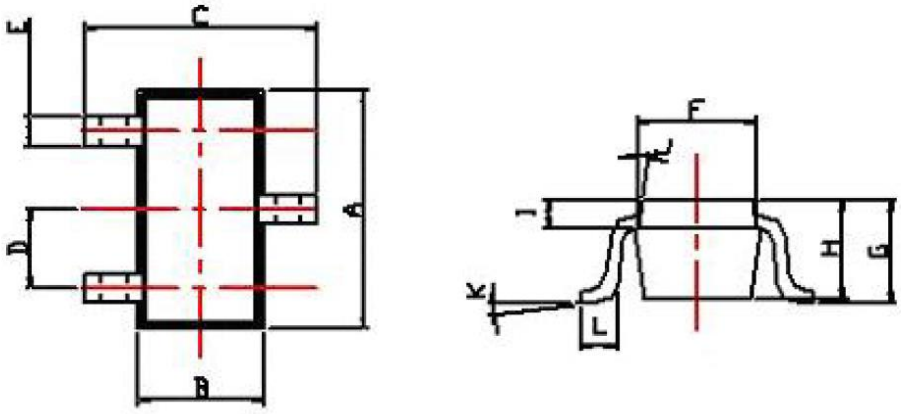


Fig.8 Gate Charge Waveform

Physical Dimensions

3-Pin surface Mount SOT-23-3



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.9	1.4
B	1.20	1.66	H	0.8	1.30
C	2.37	2.90	I	0.25	0.7
D	0.85	1.15	J	7 ± 2°.	
E	0.350 + 0.15/-0.05		K	0 ~ 10°.	
F	1.07	1.53	L	0.2 (MIN)	