GSMDS4910

40V N-Channel MOSFETs

Product 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

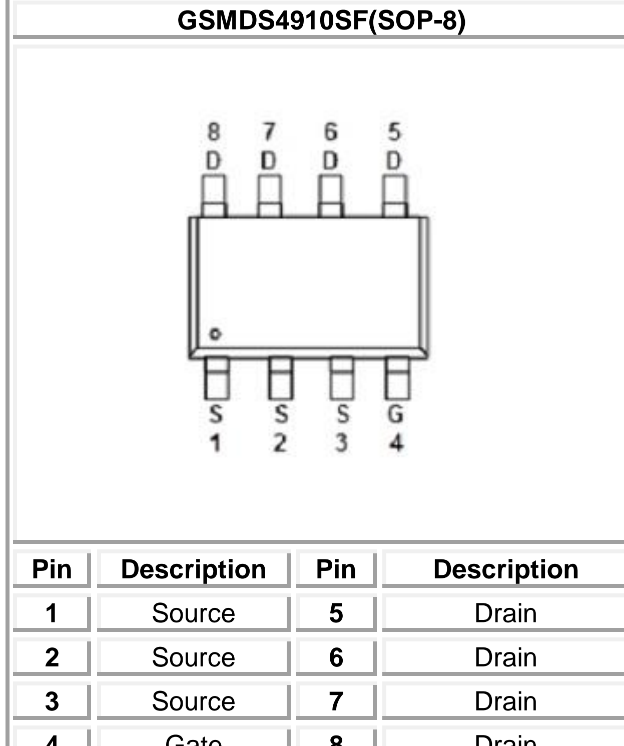
- 40V, 6.7A,$R_{DS(ON)}$=19mΩ@V_{GS}=-10V
- Improved dv/dt capability
- Fast switching
- Green Device Available
- SOP-8 package design

Applications

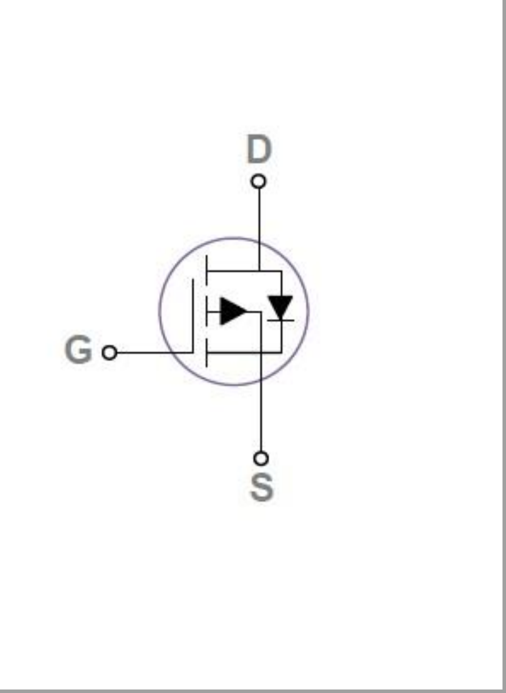
- Notebook
- Load Switch
- LED applications
- Hand-Held Device

Packages & Pin Assignments

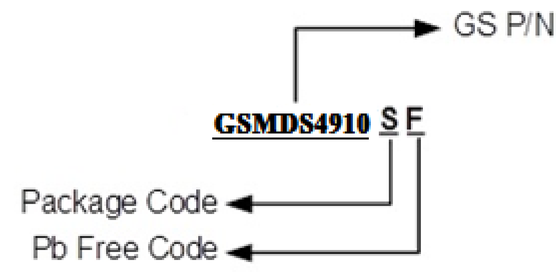
GSMDS4910SF(SOP-8)



Pin	Description	Pin	Description
1	Source	5	Drain
2	Source	6	Drain
3	Source	7	Drain
4	Gate	8	Drain

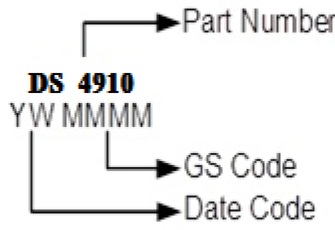


Ordering Information



Part Number	Package	QuantityReel
GSMDS4910SF	SOP-8	4000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25ºC Unless otherwise noted

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		40	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A=25℃	6.7	A
		T_A=100℃	5.4	
I_{DM}	Pulsed Drain Current		26.8	A
P_D	Power Dissipation (T_A=25℃)		1.47	W
	Power Dissipation (Derate above 25℃)		0.12	W/℃
T_J	Operating JunctionTemperatureRange		-55 to +150	℃
T_{STG}	StorageTemperatureRange		-55 to +150	℃
$R_{θJA}$	Thermal Resistance-Junction to Ambient		85	℃/W

Electrical Characteristics

T_A=25℃ Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	40			V
△BV_{DSS}/△T_J	BV_{DSS} Temperature Coefficient	Reference to 25℃, I_D=1mA		0.034		V/℃
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	1.2	1.5	2.5	V
△$V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient			-4.3		mV/℃
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=40V,V_{GS}=0V			1	uA
		V_{DS}=32V,V_{GS}=0V, T_J=85℃			10	
I_S	Continuous Source Current	V_G=V_D=0V, Force Current			6.7	A
I_{SM}	Pulsed Source Current				13.4	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V,I_D=6A		16	19	mΩ
		V_{GS}=4.5V,I_D=4A		20	125	
g_{FS}	Forward Transconductance	V_{DS}=10V,I_D=3A		6		S
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=1A			1	V
Dynamic						
Q_g	Total Gate Charge	V_{DS}=32V,V_{GS}=10V, I_D=6A		11.8	23	nC
Q_{gs}	Gate-Source Charge			1.7	3.4	
Q_{gd}	Gate-Drain Charge			4	8	
C_{iss}	Input Capacitance	V_{DS}=20V,V_{GS}=0V, F=1MHz		722	1440	pF
C_{oss}	Output Capacitance			83	166	
C_{rss}	Reverse Transfer Capacitance			61	122	
$t_{d(on)}$	Turn-On Time	V_{DD}=20V,I_D=1A, V_{GS}=10V,R_G=3.3Ω		5	10	ns
t_r				8	16	
$t_{d(off)}$	Turn-Off Time			17	34	
t_f				5	10	

Typical Performance Characteristics

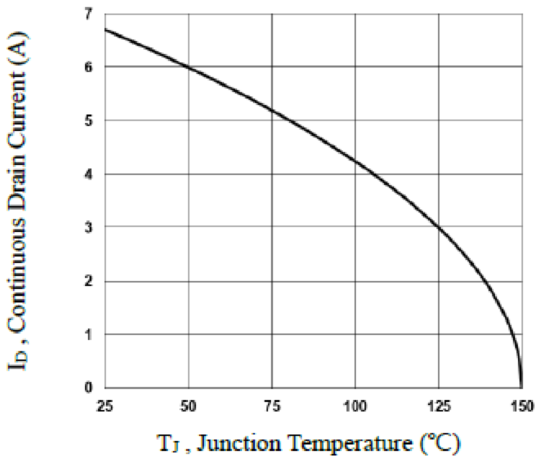


Fig.1 Continuous Drain Current vs. T_J

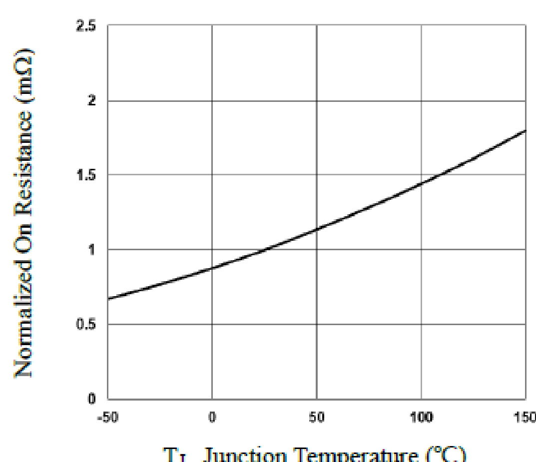


Fig.2 Normalized RDSON vs. T_J

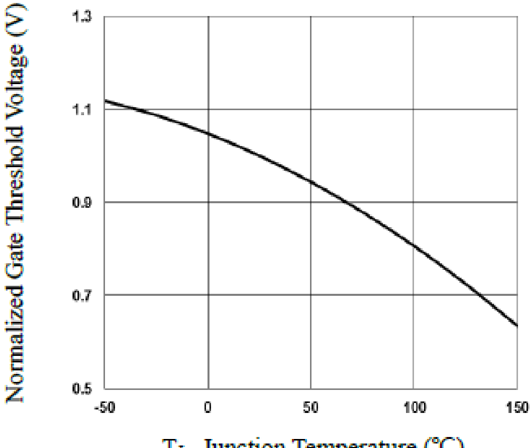


Fig.3 Normalized V_{th} vs. T_J

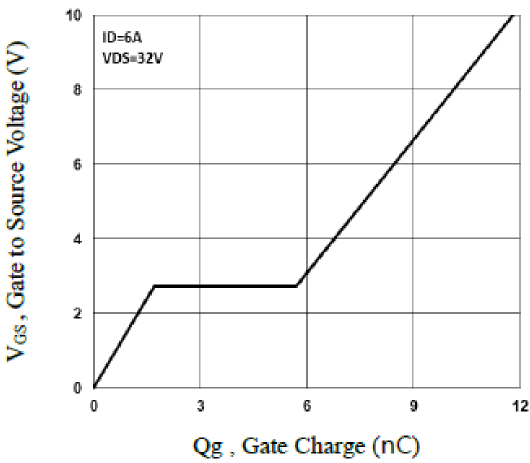


Fig.4 Gate Charge Waveform

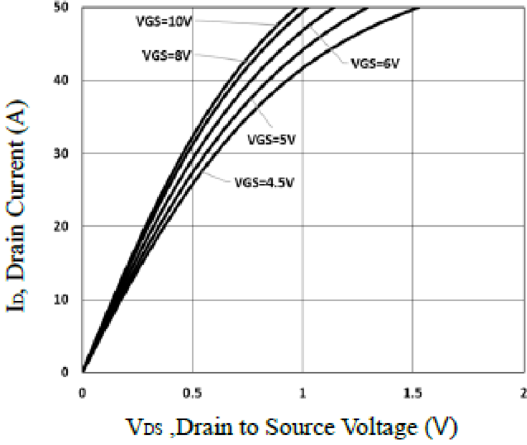


Fig.5 Typical Output Characteristics

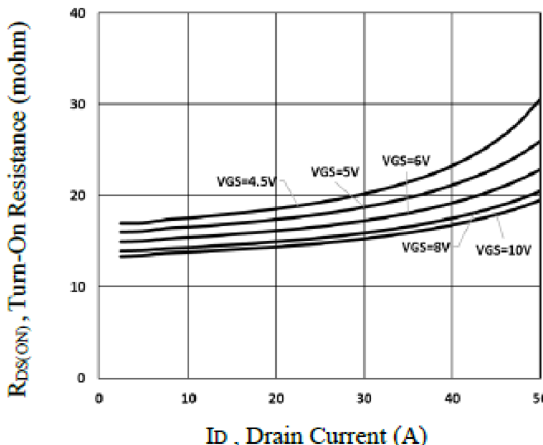


Fig.6 Turn-On Resistance vs. ID

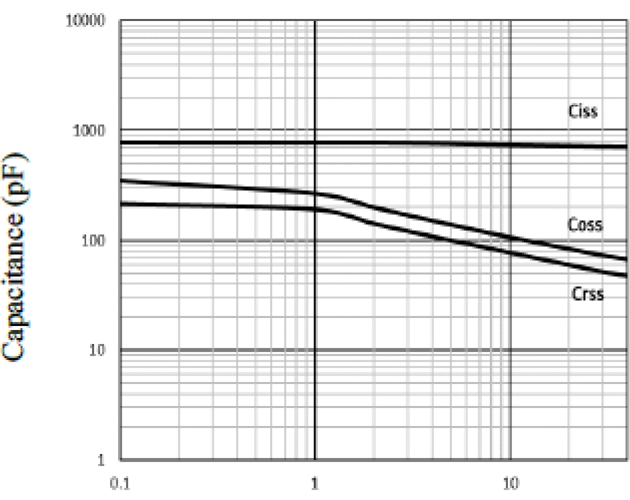


Fig.7 Capacitance Characteristics

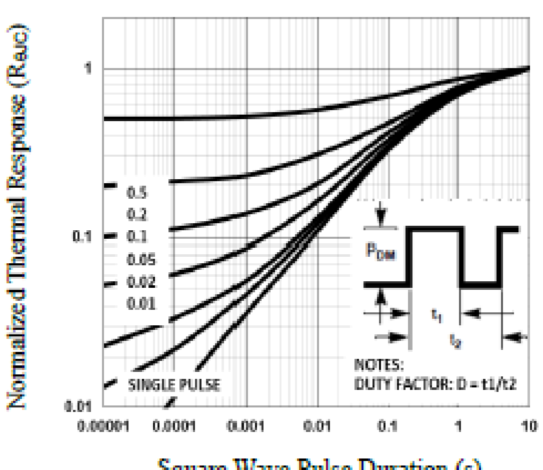


Fig.8 Normalized Transient Impedance

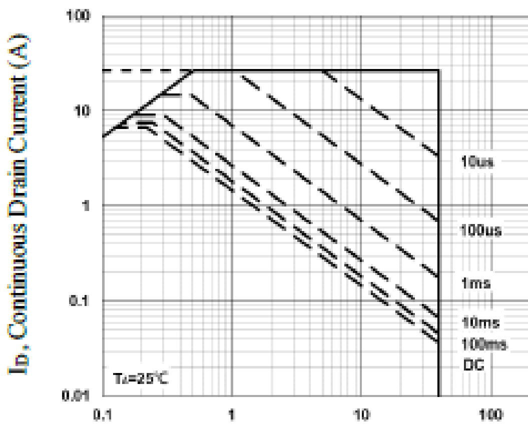


Fig.9 Maximum Safe Operation Area

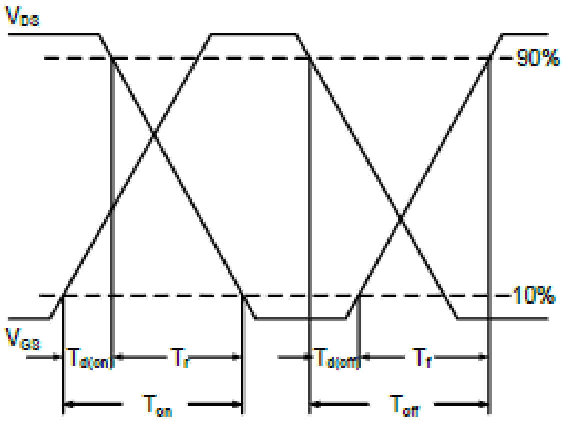


Fig.10 Switching Time Waveform

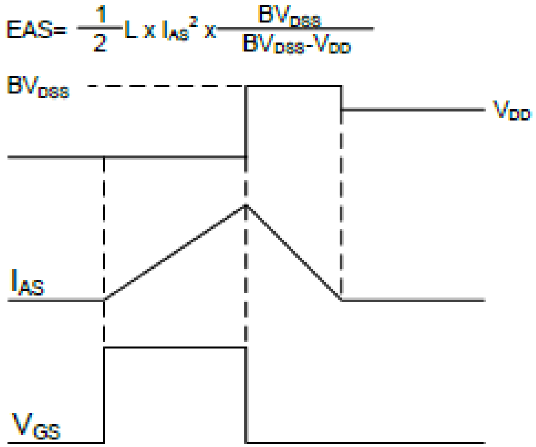
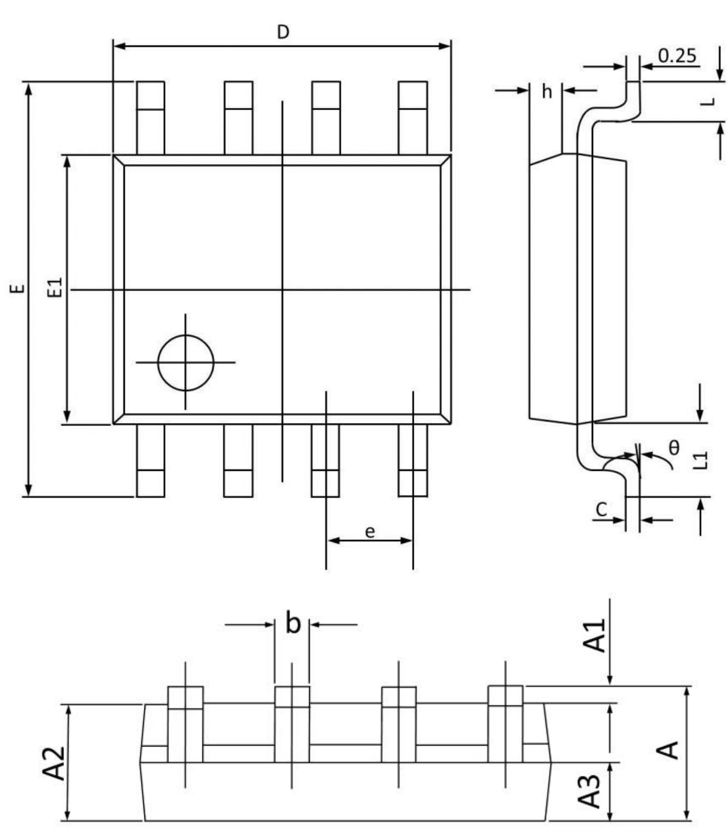


Fig.11 EAS Waveform

Package Dimension

SOP-8 PACKAGE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.068
A1	0.100	0.250	0.004	0.009
A2	1.300	1.500	0.052	0.059
A3	0.600	0.700	0.024	0.027
b	0.390	0.480	0.016	0.018
c	0.210	0.260	0.009	0.010
D	4.700	5.100	0.186	0.200
E	5.800	6.200	0.229	0.244
E1	3.700	4.100	0.146	0.161
e	1.270(BSC)		0.050(BSC)	
h	0.250	0.500	0.010	0.019
L	0.500	0.800	0.019	0.031
L1	1.050(BSC)		0.041(BSC)	
θ	0°	8°	0°	8°

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CONTACT US

GS Headquarter	
Address	4F.,No.43-1,Lane11,Sec.6,MinquanE.RdNeihuDistrictTaipeiCity 114, Taiwan (R.O.C)
Phone	886-2-2657-9980
Fax	886-2-2657-3630
Email	sales_twn@gs-power.com

RD Division	
Address	824 Bolton DriveMilpitas. CA. 95035
Phone	1-408-457-0587