

GSMDEW2210

20V Dual N-Channel MOSFETs

Product Description

These Dual 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.

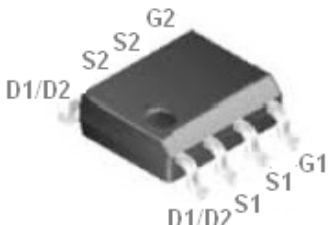
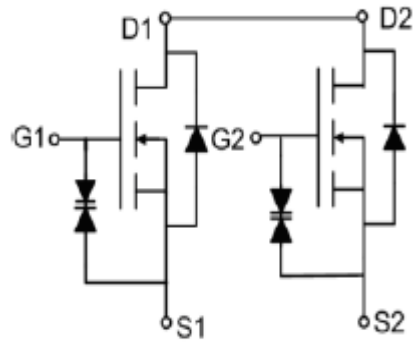
Features

- 20V, 7.5A, $R_{DS(ON)}=12m\Omega@V_{GS}=4.5V$
- Improved dv/dt capability
- Fast switching
- Suit for 1.8V Gate Drive Applications
- G-S ESD protection diode embedded
- Green Device Available
- TSSOP-8 & SOP-8 package design

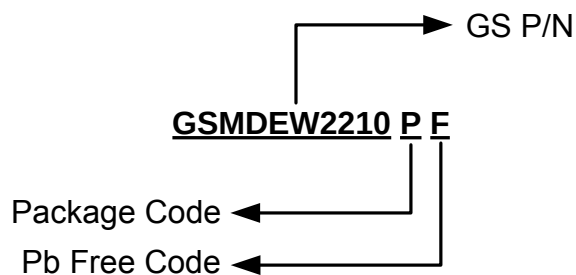
Applications

- Notebook
- Load Switch
- LED applications

Packages & Pin Assignments

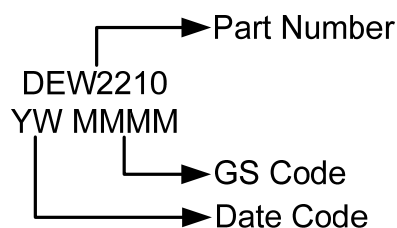
GSMDEW2210TSSF (TSSOP-8)		GSMDEW2210SF (SOP-8)	
			
Top View		Top View	
Pin	Description		
1	Drain 1/2		
2	Source 1		
3	Source 1		
4	Gate 1		
5	Gate 2		
6	Source 2		
7	Source 2		
8	Drain 1/2		

Ordering Information



Part Number	Package	Quantity Reel
GSMDEW2210TSSF	TSSOP-8	3000 PCS
GSMDEW2210SF	SOP-8	3000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

Symbol	Parameter		Typical	Unit
V _{DS}	Drain-Source Voltage		20	V
V _{GS}	Gate-Source Voltage		±10	V
I _D	Continuous Drain Current	T _A =25°C	7.5	A
		T _A =100°C	4.7	
I _{DM}	Pulsed Drain Current		30	A
P _D	Power Dissipation (T _A =25°C)		1.25	W
	Power Dissipation (Derate above 25°C)		0.01	W/°C
T _J	Operating Junction Temperature Range		-55 to +150	°C
T _{STG}	Storage Temperature Range		-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient		100	°C/W

Electrical Characteristics

T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V,I _D =250uA	20			V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25℃, I _D =1mA		0.02		V/℃
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250uA	0.3	0.6	1	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient			2		mV/℃
I _{GSS}	Gate Leakage Current	V _{DS} =0V,V _{GS} =±10V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V,V _{GS} =0V			1	uA
		V _{DS} =16V,V _{GS} =0V, T _J =125℃			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			7.5	A
I _{SM}	Pulsed Source Current				30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =4.5V,I _D =5A		10	12	mΩ
		V _{GS} =2.5V,I _D =3A		11	14	
		V _{GS} =1.8V,I _D =2A		13	20	
g _{FS}	Forward Transconductance	V _{DS} =10V,I _D =5A		11		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _S =1A			1	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =10V,V _{GS} =4.5V, I _D =5A		16.9	26	nC
Q _{gs}	Gate-Source Charge			1.1	3	
Q _{gd}	Gate-Drain Charge			4	7	
C _{iss}	Input Capacitance	V _{DS} =10V,V _{GS} =0V, f=1MHz		1020	1480	pF
C _{Oss}	Output Capacitance			160	240	
C _{rss}	Reverse Transfer Capacitance			110	160	
t _{d(on)}	Turn-On Time	V _{DD} =10V,I _D =1A, V _{GS} =4.5V,R _G =25Ω		6.8	13	ns
t _r				20	38	
t _{d(off)}	Turn-Off Time			41.8	79	
t _f				13.2	25	

Typical Performance Characteristics

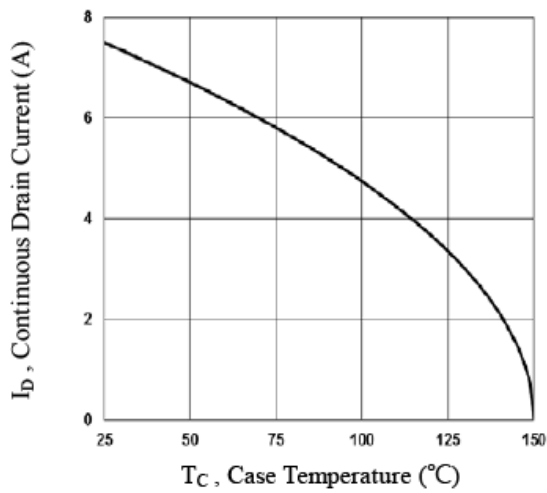


Fig.1 Continuous Drain Current vs. T_C

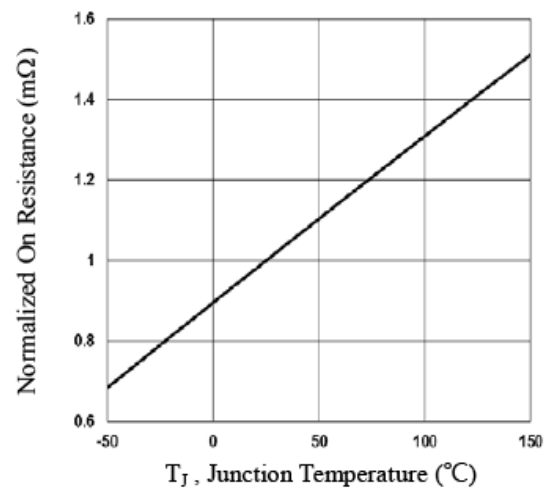


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

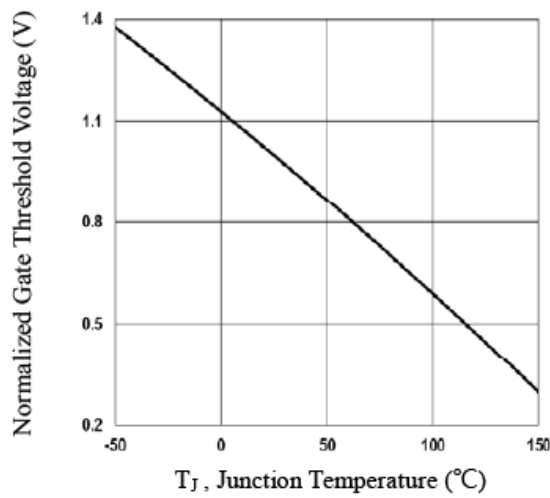


Fig.3 Normalized V_{th} vs. T_J

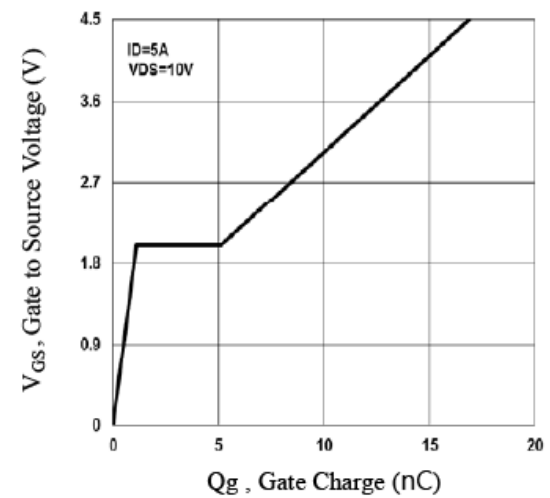


Fig.4 Gate Charge Waveform

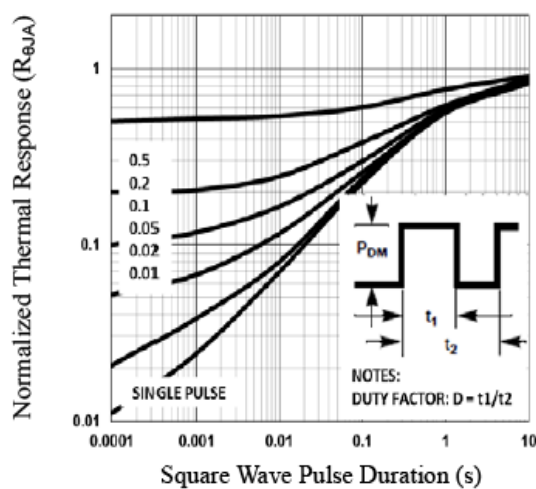


Fig.5 Normalized Transient Impedance

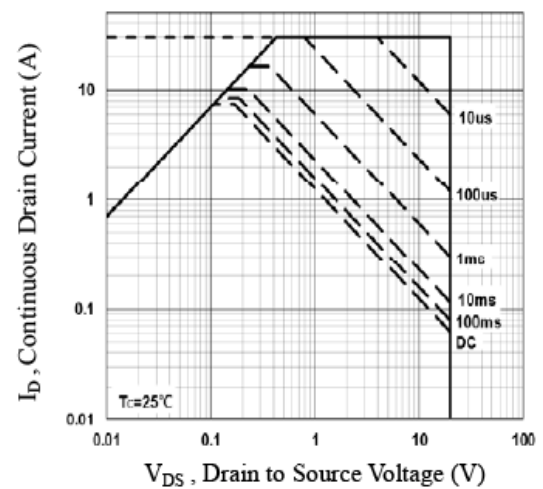
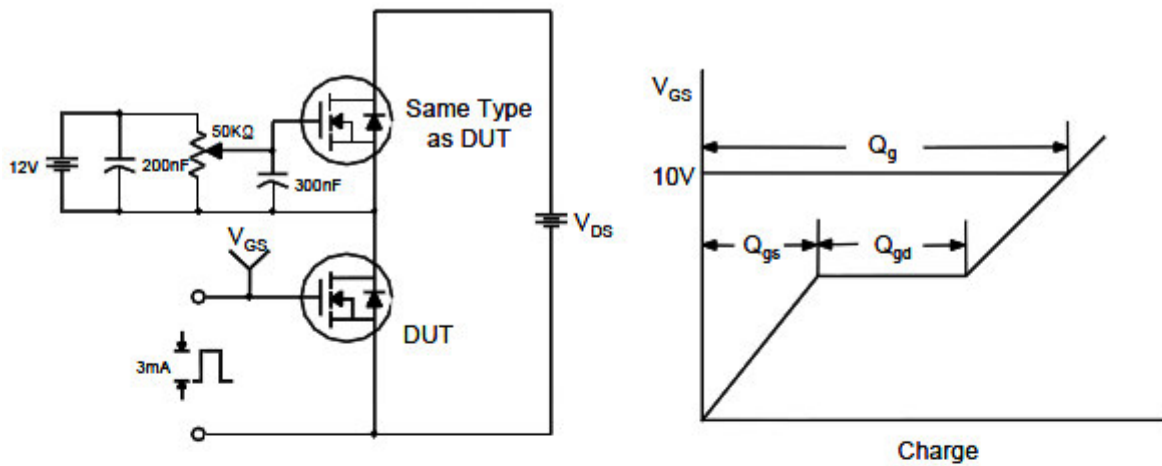


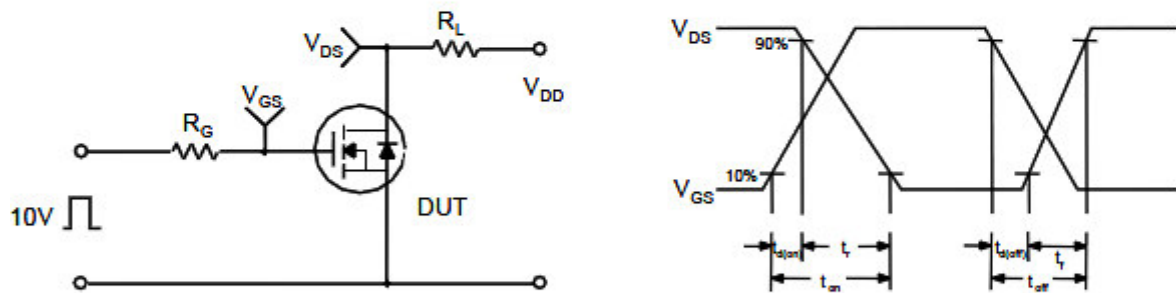
Fig.6 Maximum Safe Operation Area

Typical Performance Characteristics (Continue)

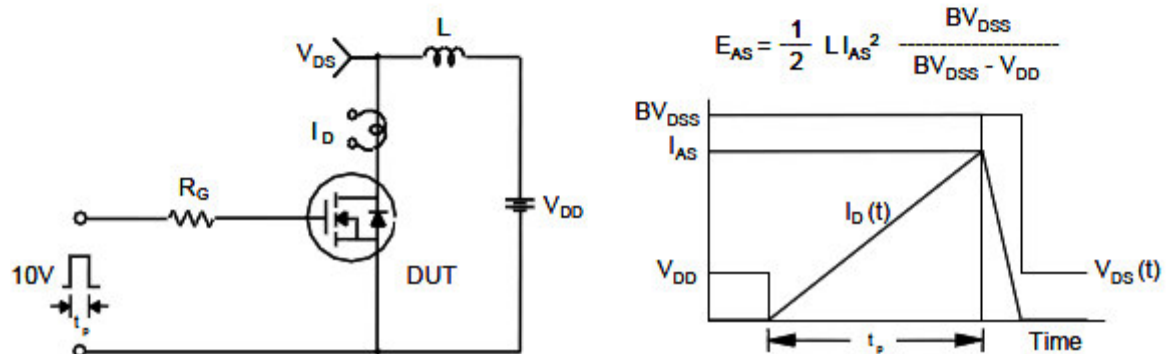
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

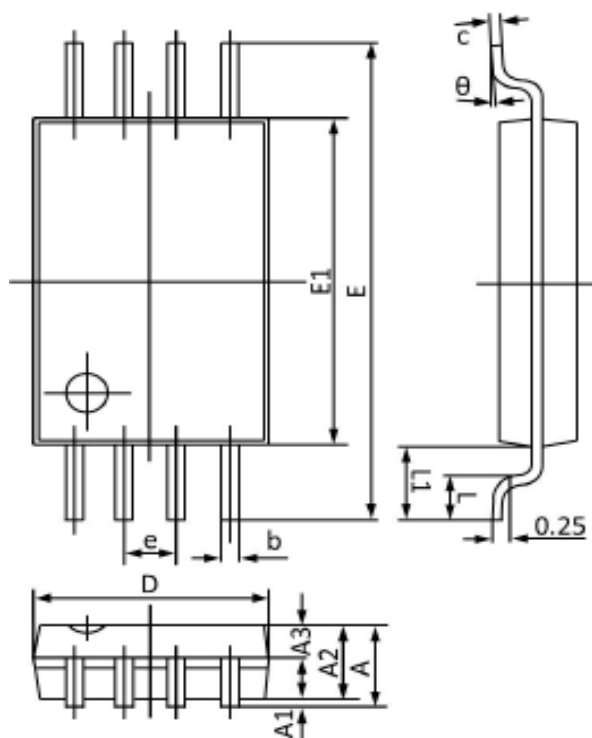


Unclamped Inductive Switching Test Circuit & Waveforms



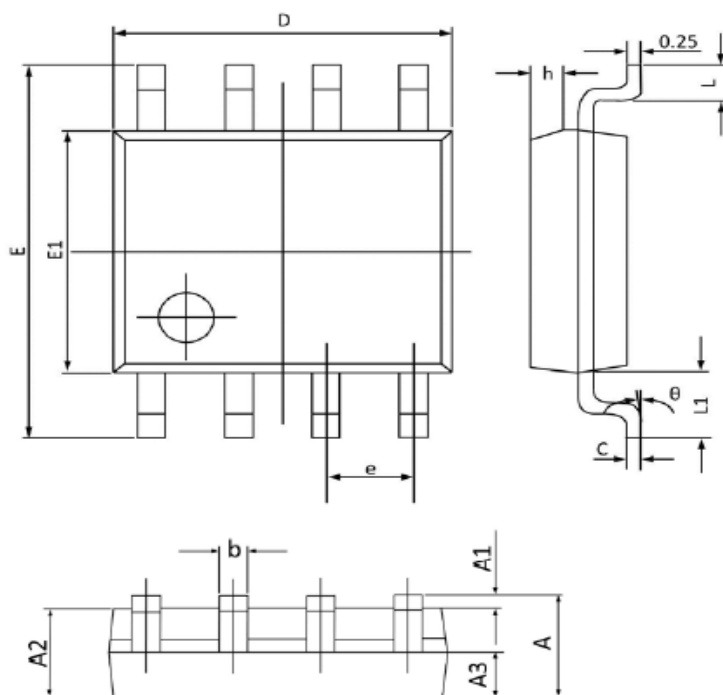
Package Dimension

TSSOP-8



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.100	1.200	0.044	0.047
A1	0.050	0.150	0.002	0.006
A2	0.900	1.050	0.036	0.041
A3	0.390	0.490	0.016	0.019
b	0.210	0.300	0.009	0.011
c	0.130	0.190	0.006	0.007
D	0.120	0.140	0.004	0.006
E	6.200	6.600	0.244	0.260
E1	4.300	4.500	0.169	0.177
e	0.650 (BSC)		0.025 (BSC)	
L	0.450	0.750	0.018	0.029
L1	1.000 (BSC)		0.039 (BSC)	
θ	0°	8°	0°	8°

SOP-8



Dimensions				
Symbol	Millimeters		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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