

GSMDEW2206

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.

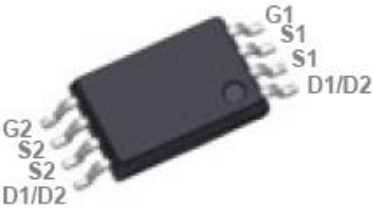
Features

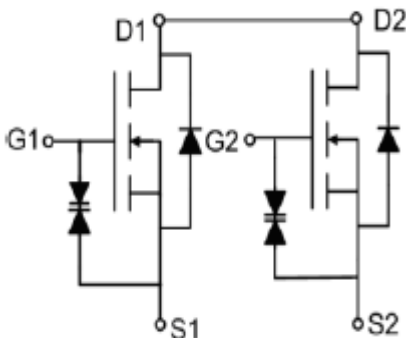
- 20V, 10A, $R_{DS(ON)}=8.5m\Omega@V_{GS}=4.5V$
- Improved dv/dt capability
- Fast switching
- Suit for 1.8V Gate Drive Applications
- G-S ESD protection diode embedded
- Green Device Available
- TSSOP-8 package design

Applications

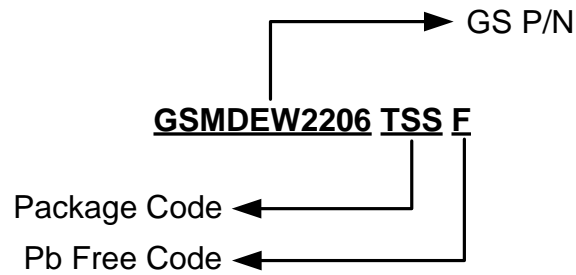
- Notebook
- Load Switch
- LED applications

Packages & Pin Assignments

GSMDEW2206TSSF (TSSOP-8)	
 <p style="text-align: center;">Top View</p>	
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
GSMDEW2206TSSF	TSSOP-8	3000 PCS

Marking Information



Absolute Maximum Ratings

$T_c=25^{\circ}\text{C}$ 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	$T_c=25^{\circ}\text{C}$	10
		$T_c=100^{\circ}\text{C}$	6.3
I_{DM}	Pulsed Drain Current	40	A
P_D	Power Dissipation ($T_c=25^{\circ}\text{C}$)	1.25	W
	Power Dissipation (Derate above 25°C)	0.01	W/ $^{\circ}\text{C}$
T_J	Operating Junction Temperature Range	-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	100	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

T_J=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°C, I _D =1mA		0.01		V/°C
V _{GS(th)}	Gate Threshold Voltage		0.3	0.6	1	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient	V _{DS} =V _{GS} , I _D =250uA		2		mV/°C
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°C			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			10	A
I _{SM}	Pulsed Source Current				40	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =4.5V, I _D =6A		7.2	8.5	mΩ
		V _{GS} =2.5V, I _D =4A		7.8	9.5	
		V _{GS} =1.8V, I _D =2A		8.6	11	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _S =5A		20		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 =6A		29.8	45	nC
Q _{gs}	Gate-Source Charge			2.7	6	
Q _{gd}	Gate-Drain Charge			9	14	
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz		1920	2790	pF
C _{oss}	Output Capacitance			280	410	
C _{rss}	Reverse Transfer Capacitance			180	270	
t _{d(on)}	Turn-On Time	V _{DD} =10V, I _D =1A, V _{GS} =4.5V, R _G =25Ω		13.5	26	ns
t _r				29	55	
t _{d(off)}	Turn-Off Time			66.9	127	
t _f				19.2	36	

Typical Performance Characteristics

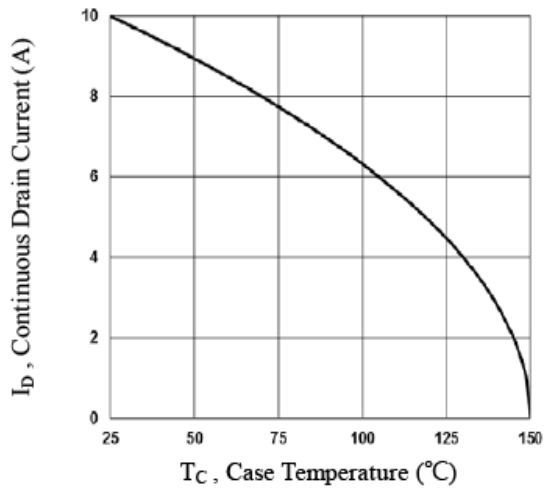


Fig.1 Continuous Drain Current vs. T_C

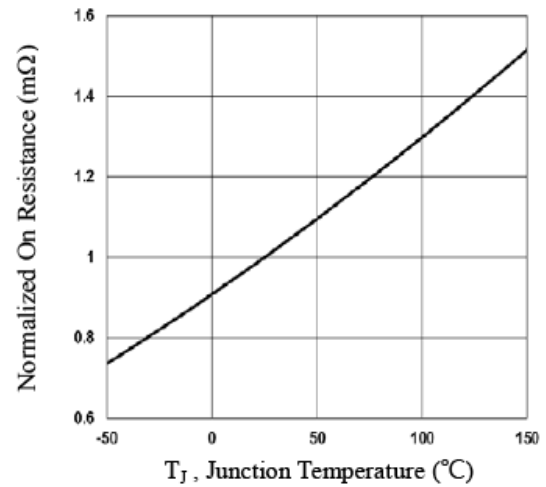


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

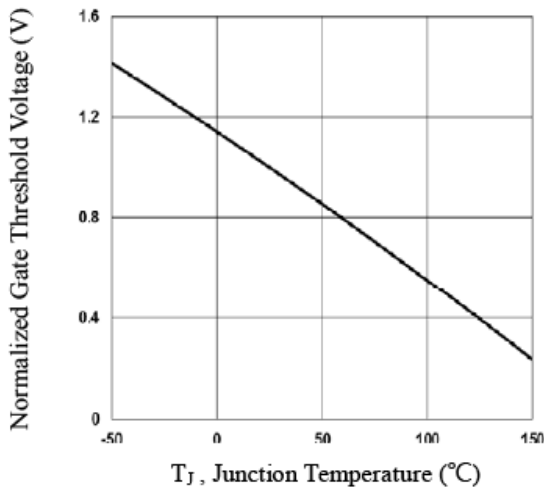


Fig.3 Normalized V_{th} vs. T_J

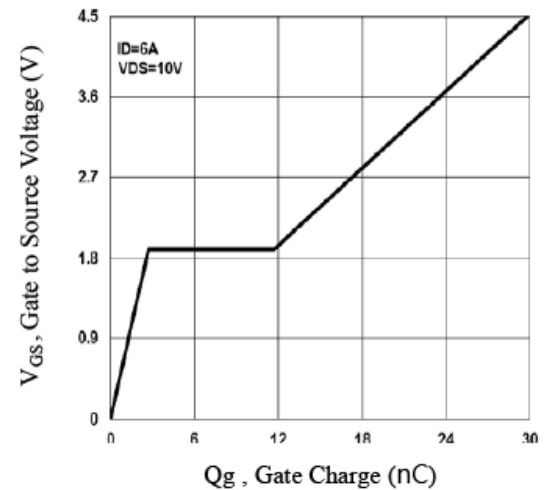


Fig.4 Gate Charge Waveform

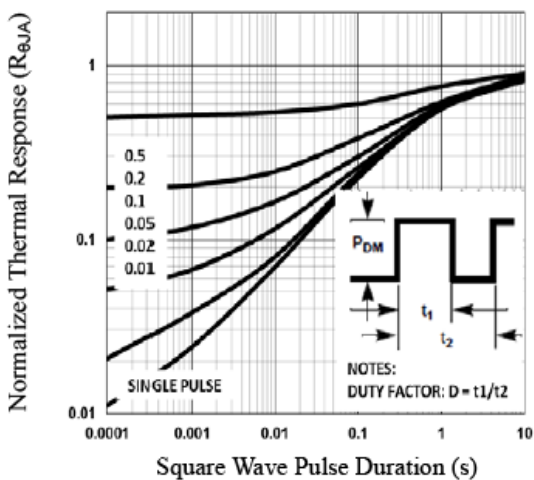


Fig.5 Normalized Transient Impedance

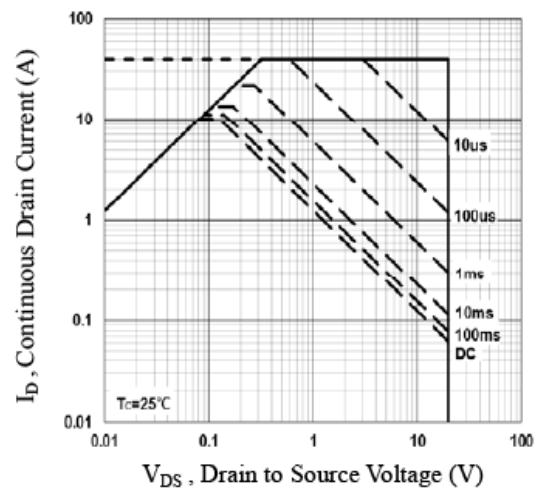
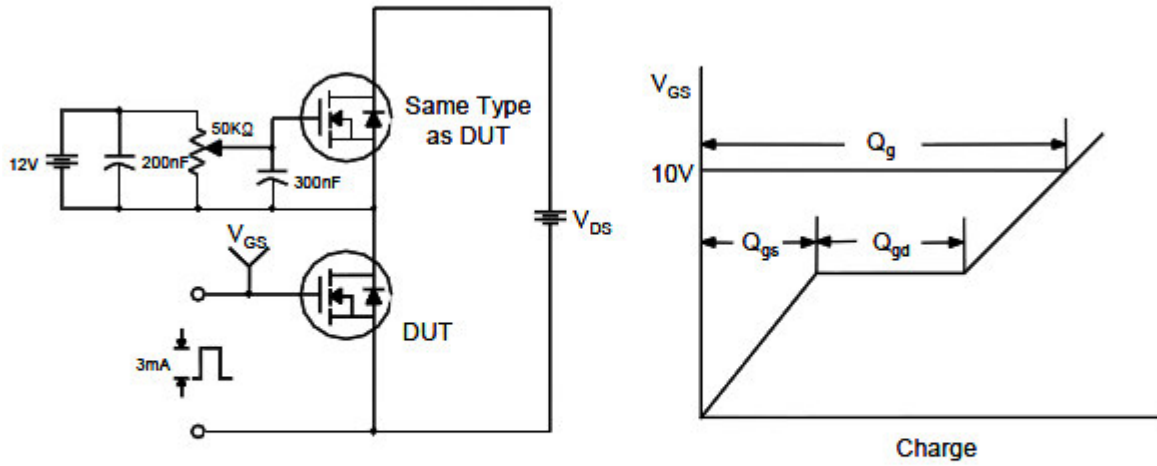


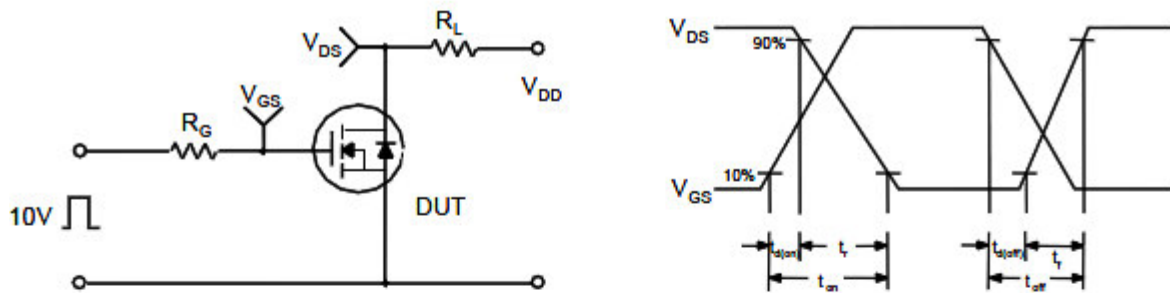
Fig.6 Maximum Safe Operation Area

Typical Performance Characteristics (Continue)

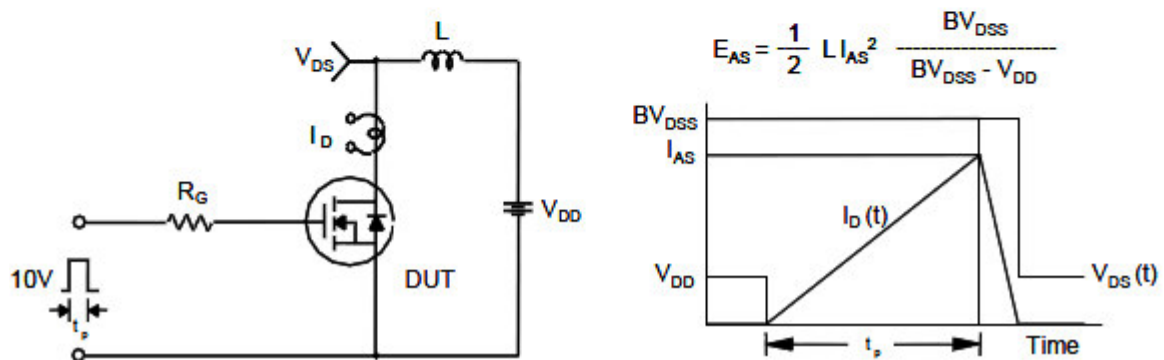
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

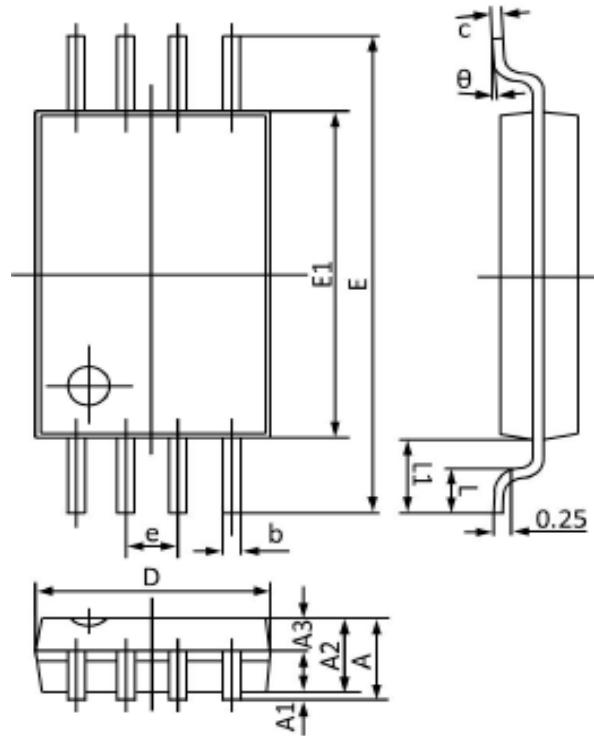


Unclamped Inductive Switching Test Circuit & Waveforms



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°

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