

GSMDS0966

100V 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.

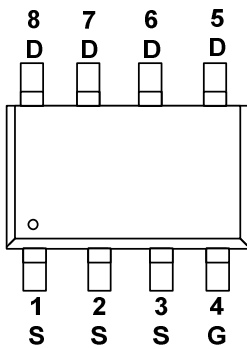
Features

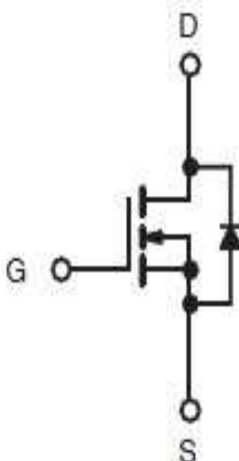
- 100V, 10A, $R_{DS(ON)}=18m\Omega@V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS guaranteed
- Green Device Available
- SOP-8 package design

Applications

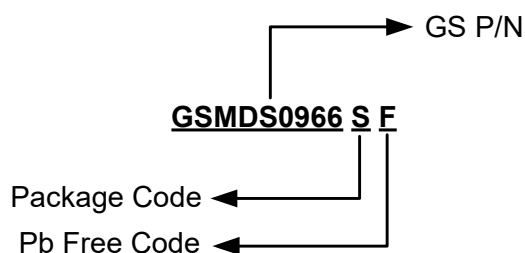
- Networking
- Load Switch
- LED applications

Packages & Pin Assignments

GSMDS0966SF (SOP-8)	
 Top View	
Pin	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain

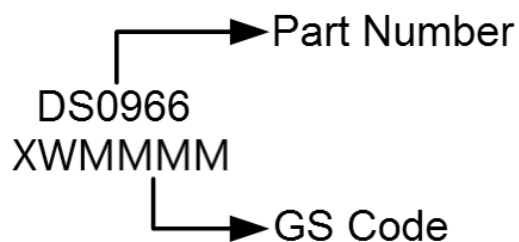


Ordering Information



Part Number	Package	Quantity Reel
GSMDS0966SF	SOP-8	4000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

Symbol	Parameter		Typical	Unit
V _{DS}	Drain-Source Voltage		100	V
V _{GS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current	T _A =25°C	10	A
		T _A =100°C	6.3	
I _{DM}	Pulsed Drain Current		40	A
P _D	Power Dissipation (T _A =25°C)		10.4	W
	Power Dissipation (Derate above 25°C)		0.083	W/°C
T _J	Operating Junction Temperature Range		-50 to +150	°C
T _{STG}	Storage Temperature Range		-50 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient		85	°C/W
R _{θJC}	Thermal Resistance-Junction to Case		12	°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	100			V
△BV _{DSS} /△T _J	BV _{DSS} Temperature Coefficient	Reference to 25℃, I _D =1mA		0.05		V/℃
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250uA	1	2	3	V
△V _{GS(th)}	V _{GS(th)} Temperature Coefficient			-5		mV/℃
I _{GSS}	Gate Leakage Current	V _{DS} =0V,V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V,V _{GS} =0V			1	uA
		V _{DS} =80V,V _{GS} =0V, T _J =125℃			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			10	A
I _{SM}	Pulsed Source Current				20	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V,I _D =10A		15	18	mΩ
		V _{GS} =6V,I _D =5A		17	22	
		V _{GS} =4.5V,I _D =5A		25	38	
g _{FS}	Forward Transconductance	V _{DS} =10V,I _D =3A		10		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _S =1A			1	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =50V,V _{GS} =10V, I _D =5A		36.8	68	nC
Q _{gs}	Gate-Source Charge			9.3	18	
Q _{gd}	Gate-Drain Charge			9.8	19	
C _{iSS}	Input Capacitance	V _{DS} =50V,V _{GS} =0V, f=1MHz		1820	3300	pF
C _{oSS}	Output Capacitance			170	340	
C _{rSS}	Reverse Transfer Capacitance			90	180	
t _{d(on)}	Turn-On Time	V _{DD} =50V,I _D =1A, V _{GS} =10V,R _G =6Ω		20	40	ns
t _r				15	30	
t _{d(off)}	Turn-Off Time			45	80	
t _f				21	40	
R _g	Gate Resistance	V _{DS} =0V,V _{GS} =0V, f=1MHz		1.35	2.6	Ω

Typical Performance Characteristics

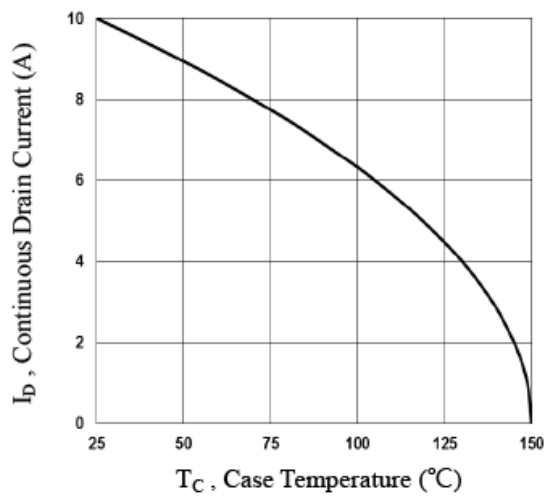


Fig.1 Continuous Drain Current vs. T_C

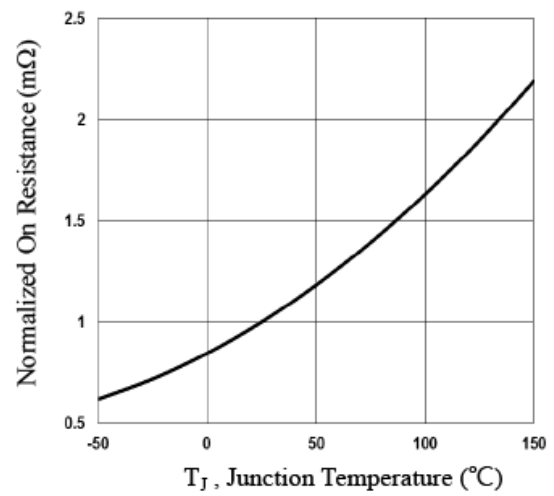


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

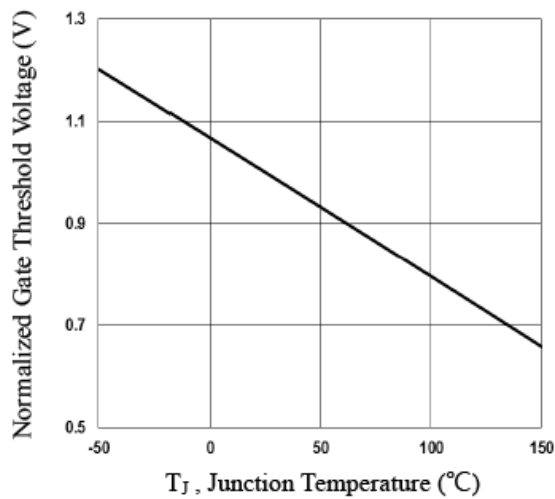


Fig.3 Normalized V_{th} vs. T_J

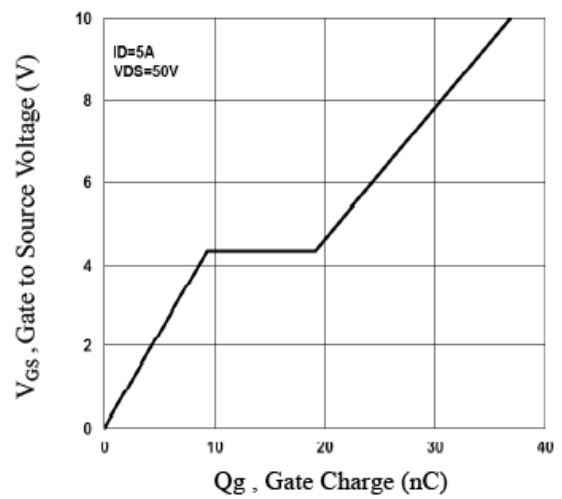


Fig.4 Gate Charge Characteristics

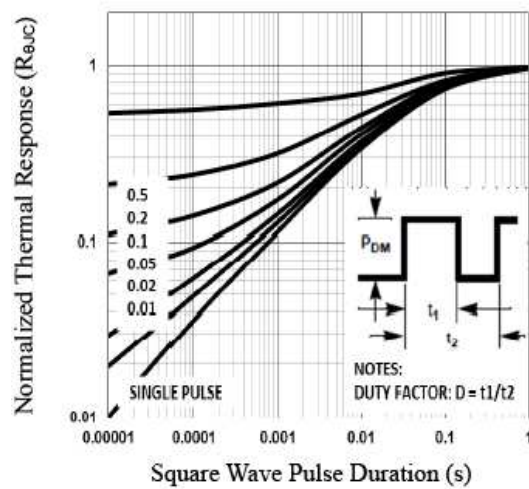


Fig.5 Normalized Transient Impedance

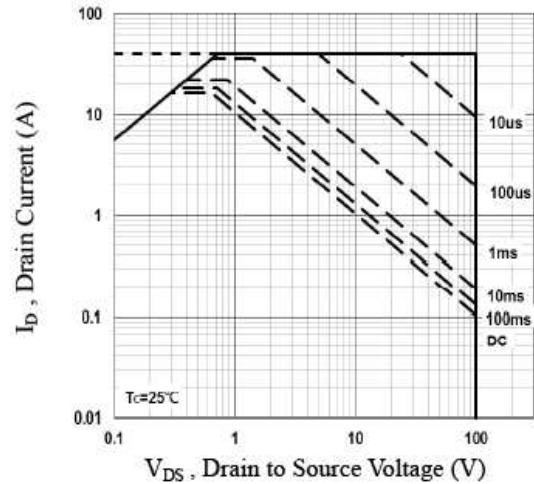
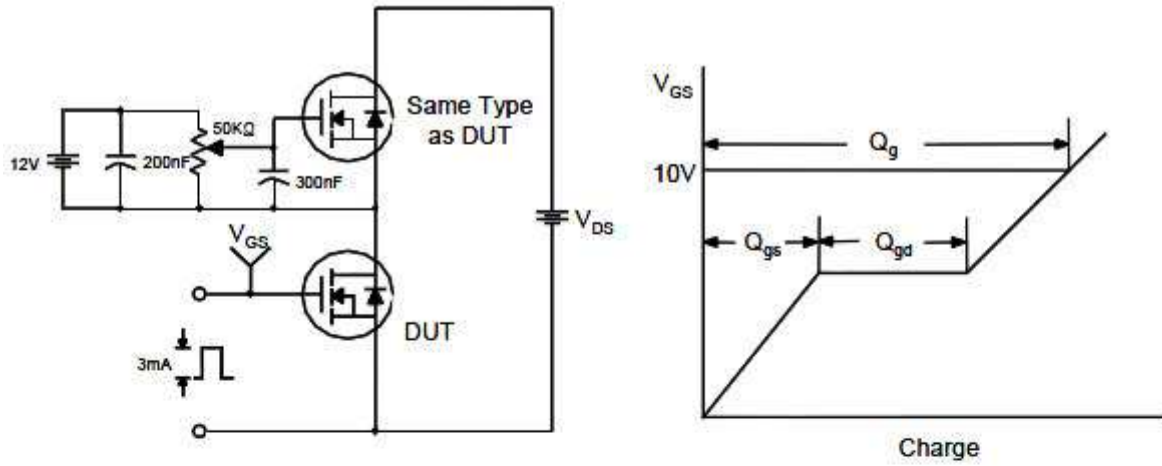


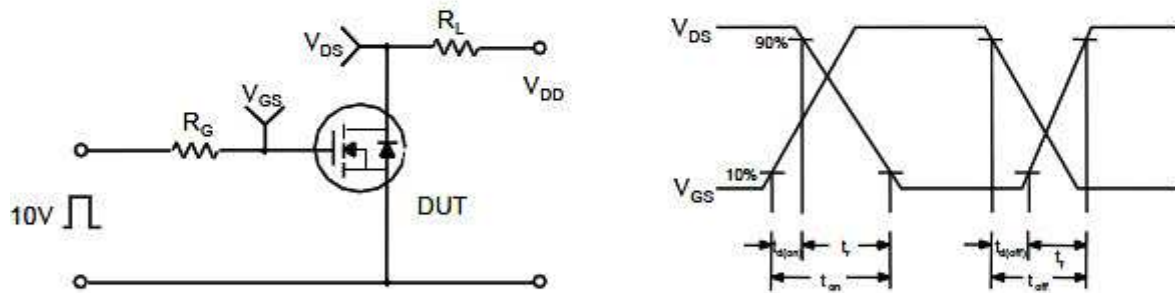
Fig.6 Maximum Safe Operation Area

Typical Performance Characteristics (Continue)

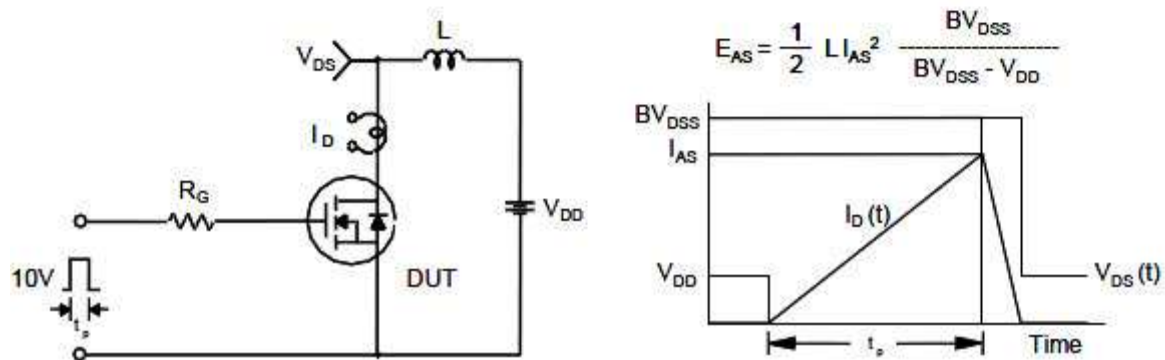
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

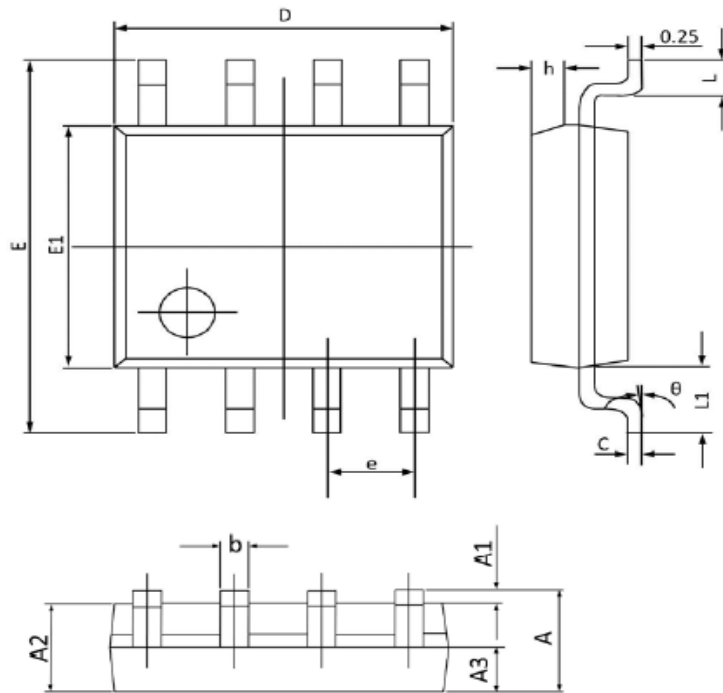


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

PLASTIC SOP-8 PACKAGE



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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