GSMDS0966SF

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.

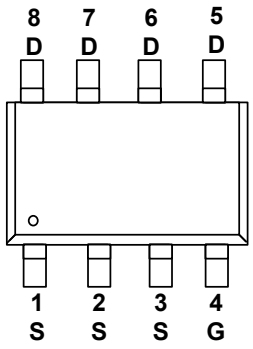
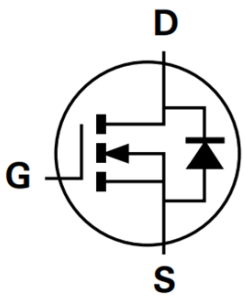
Features

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

Applications

- Networking
- Load Switch
- LED applications

Packages & Pin Assignments

SOP-8L	Equivalent Circuit
 Top View	

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

Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSMDS0966SF	SOP-8L	DS0966 □□□□□□	4,000 PCS

GSMDS0966 1 2

- **Product Code:** GSMDS0966
- **Package Code:** 1 is **S** for SOP-8L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information

DS0966
□□□□□□

- **Product Code:** DS0966
- **GS Code:** □□□□□□

Absolute Maximum Ratings (T_A=25ºC Unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		100	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A=25℃	10	A
		T_A=100℃	6.3	
I_{DM}	Pulsed Drain Current		40	A
P_D	Power Dissipation (T_A=25℃)		10.4	W
	Power Dissipation (Derate above 25℃)		0.083	W/℃
T_J	Operating Junction Temperature Range		-50 to +150	℃
T_{STG}	Storage Temperature Range		-50 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		85	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		12	℃/W

Electrical Characteristics (T_A=25℃ Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	100			V
$\triangle BV_{DSS}/\triangle T_J$	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
$\triangle V_{GS(th)}$	$V_{GS(th)}$ 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 characteristics						
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

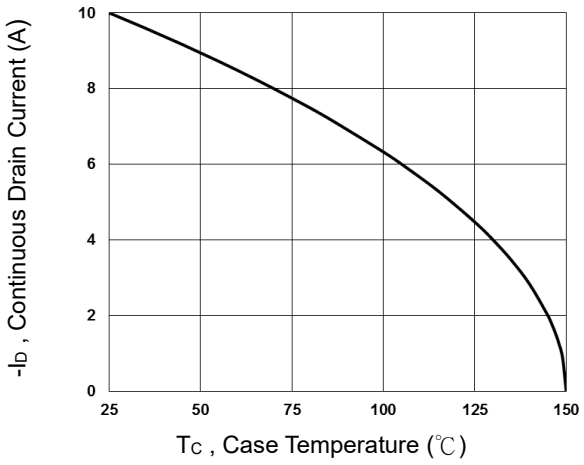


Fig.1 Continuous Drain Current vs. T_C

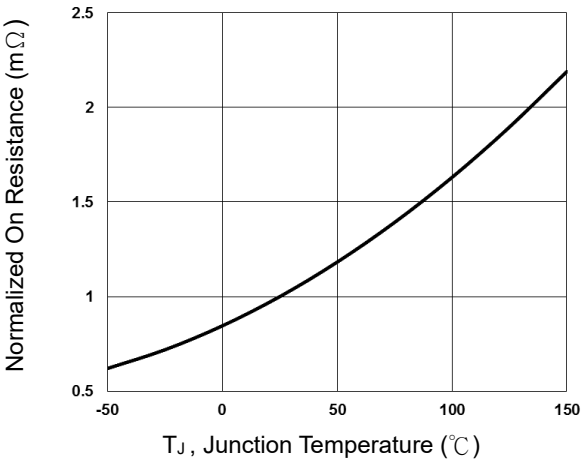


Fig.2 Normalized $RDS_{(ON)}$ vs. T_J

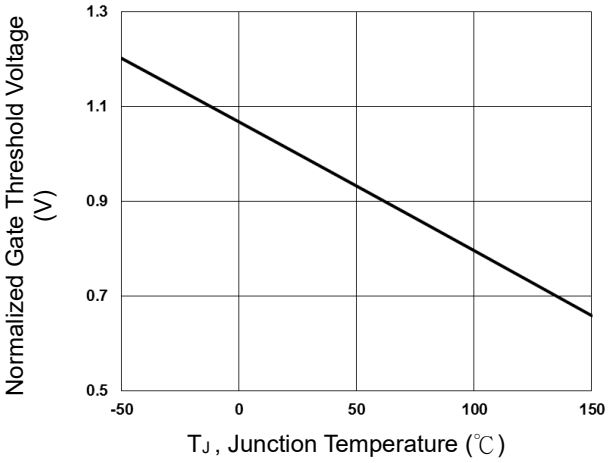


Fig.3 Normalized Vth vs. TJ

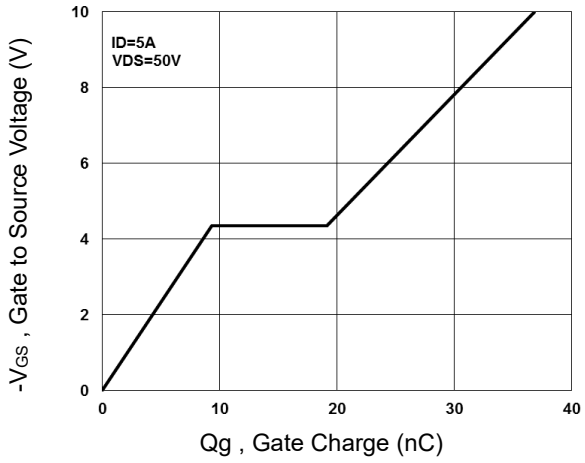


Fig.4 Gate Charge Waveform

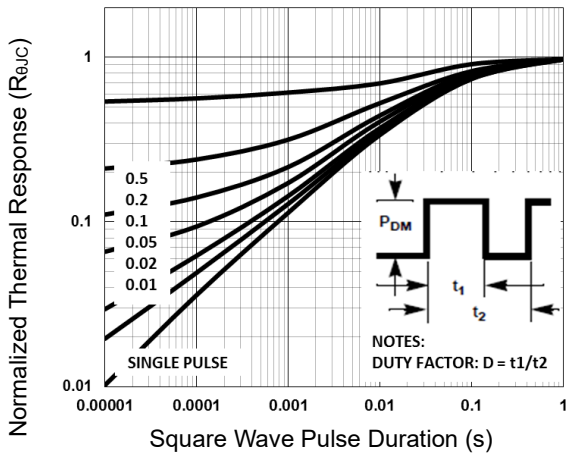


Fig.5 Normalized Transient Impedance

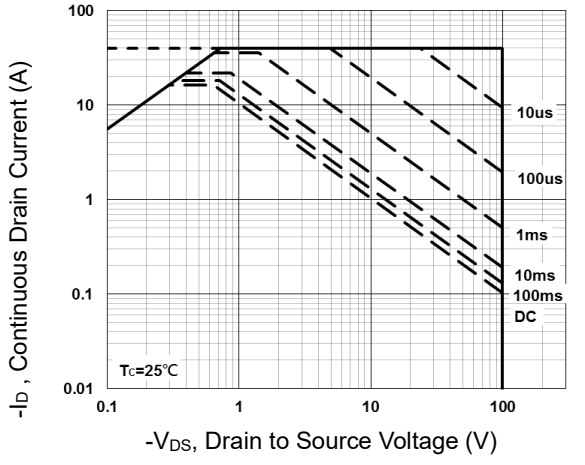
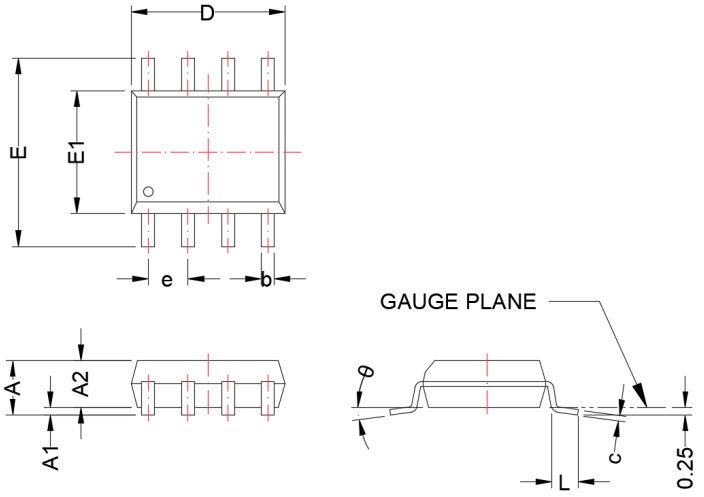


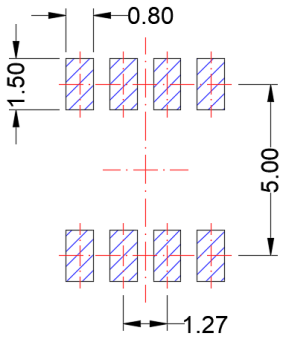
Fig.6 Maximum Safe Operation Area

SOP-8L

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	---	1.75	---	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	---	0.049	---
b	0.31	0.51	0.012	0.020
c	0.10	0.25	0.004	0.010
D	4.70	5.10	0.185	0.201
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

NOTE:
Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions.

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