

GSMDS0956

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.

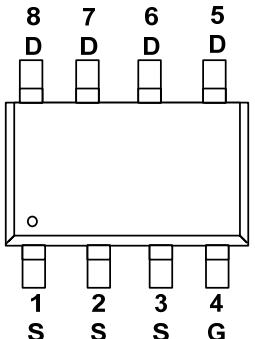
Features

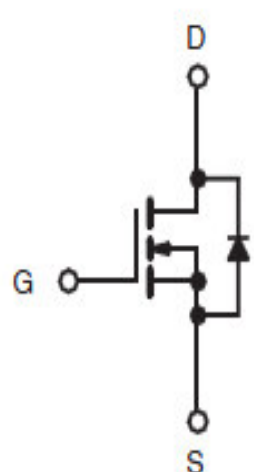
- 100V, 12A, $R_{DS(ON)}=115m\Omega@V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed
- Green Device Available
- SOP-8 package design

Applications

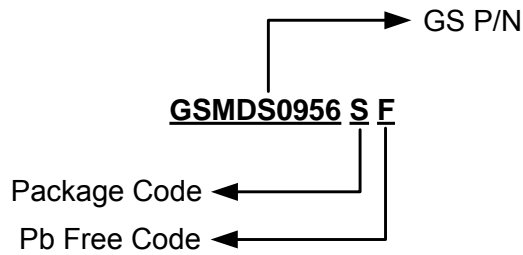
- Networking
- Load Switch
- LED Applications

Packages & Pin Assignments

GSMDS0956SF (SOP-8)	
 <p style="text-align: center;">Top View</p>	
Pin	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain

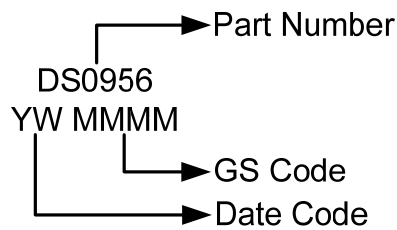


Ordering Information



Part Number	Package	Quantity Reel
GSMDS0956SF	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	12
		T _A =100°C	7.6
I _{DM}	Pulsed Drain Current	48	A
P _D	Power Dissipation (T _A =25°C)	3.6	W
	Power Dissipation (Derate above 25°C)	0.029	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	35	°C/W

Note 1: Repetitive Rating : Pulsed width limited by maximum junction temperature.

Note 2: V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=11A, R_G=25Ω, Starting T_J=25°C.

Electrical Characteristics

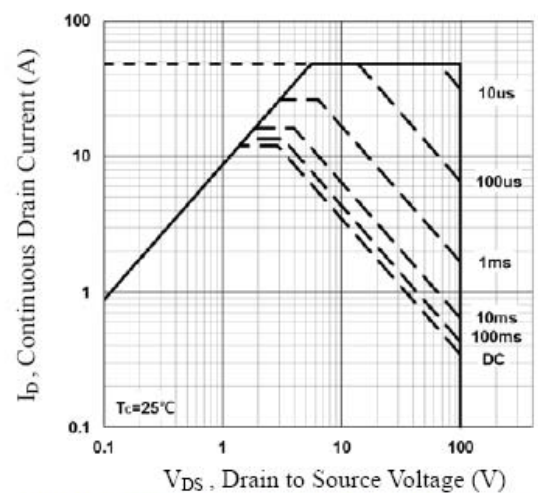
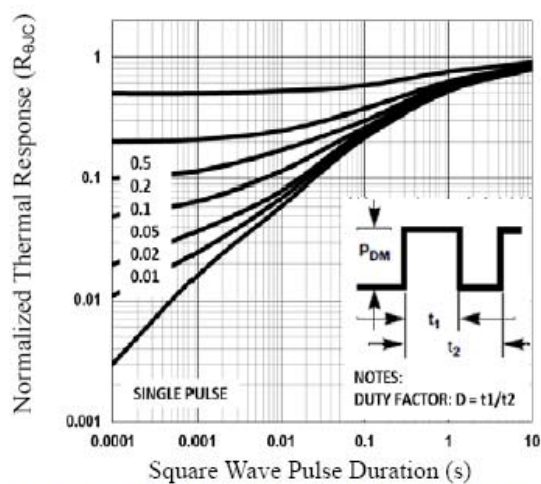
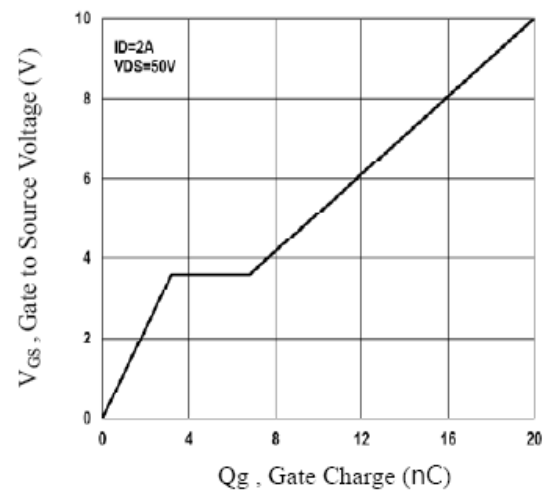
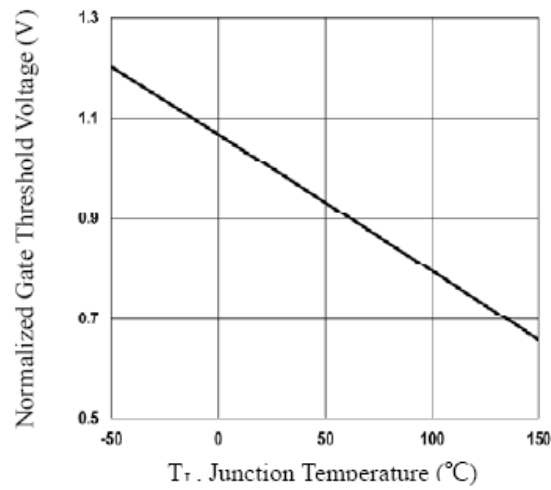
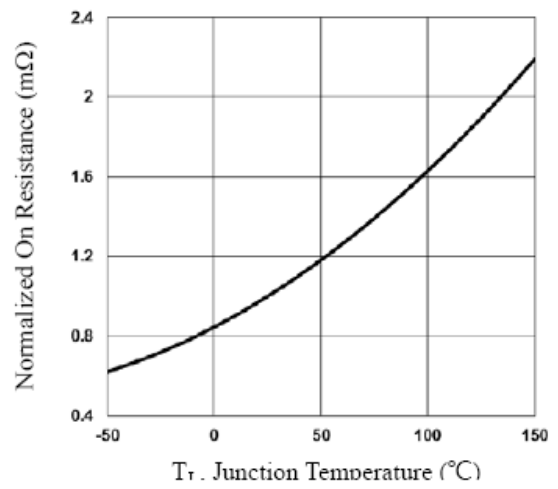
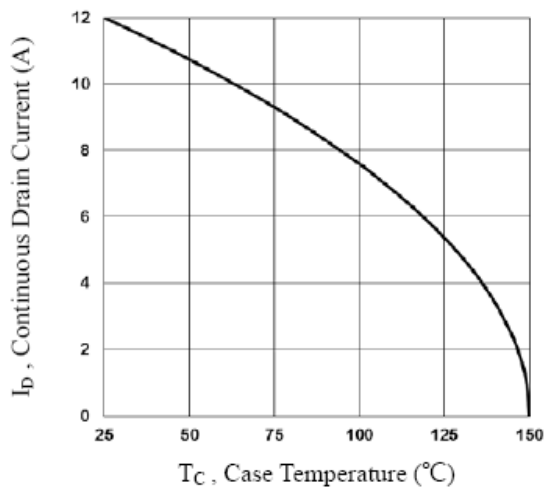
T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100			V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C, I _D =1mA		0.09		V/°C
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.2	1.6	2.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient			-5		mV/°C
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°C			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			12	A
I _{SM}	Pulsed Source Current				24	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =10A		90	115	mΩ
		V _{GS} =4.5V, I _D =8A		95	120	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =2A		8.7		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A			1	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V, I _S =1A, di/dt=100A/us		38		ns
Q _{rr}	Reverse Recovery Charge			27		nC
Dynamic						
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =10V, I _D =2A		20	40	nC
Q _{gs}	Gate-Source Charge			3.2	6	
Q _{gd}	Gate-Drain Charge			3.6	7	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz		1400	2800	pF
C _{oss}	Output Capacitance			60	120	
C _{rss}	Reverse Transfer Capacitance			35	70	
t _{d(on)}	Turn-On Time	V _{DD} =50V, I _D =1A, V _{GS} =10V, R _G =3.3Ω		18	36	ns
t _r				4	8	
t _{d(off)}	Turn-Off Time			40	80	
t _f				3	6	
R _g	Gate Resistance		V _{DS} =0V, V _{GS} =0V, f=1MHz		2	

Note 3: The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.

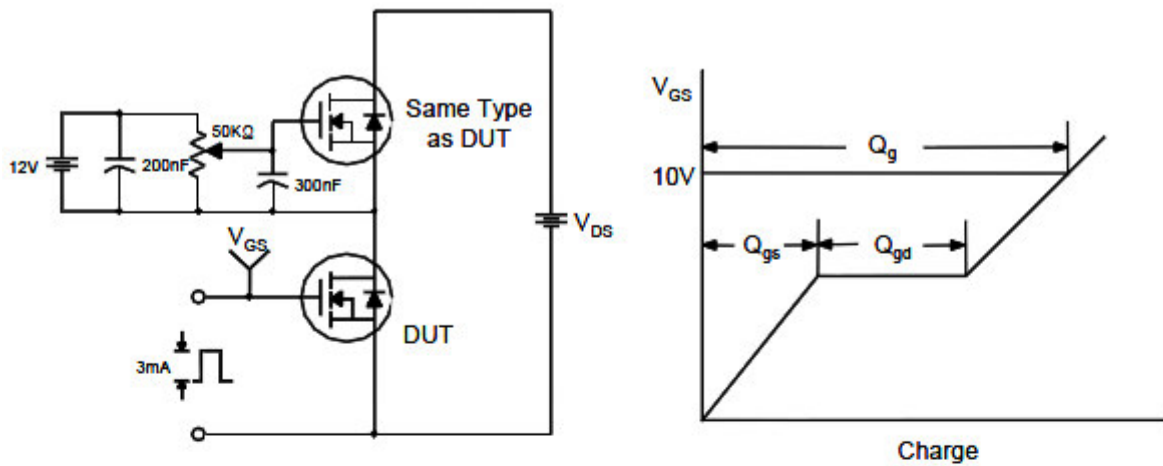
Note 4: Essentially independent of operating temperature.

Typical Performance Characteristics

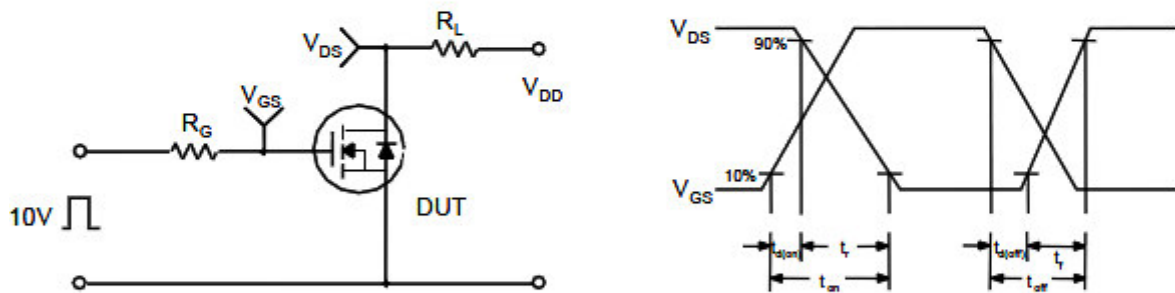


Typical Performance Characteristics (Continue)

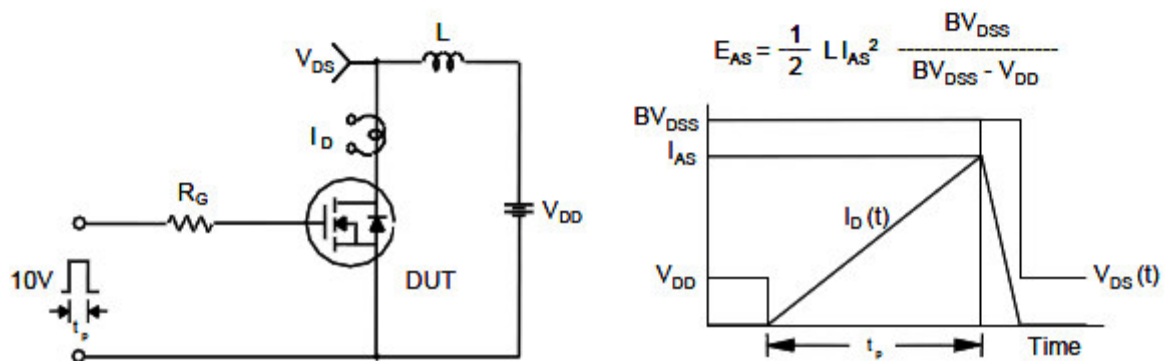
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

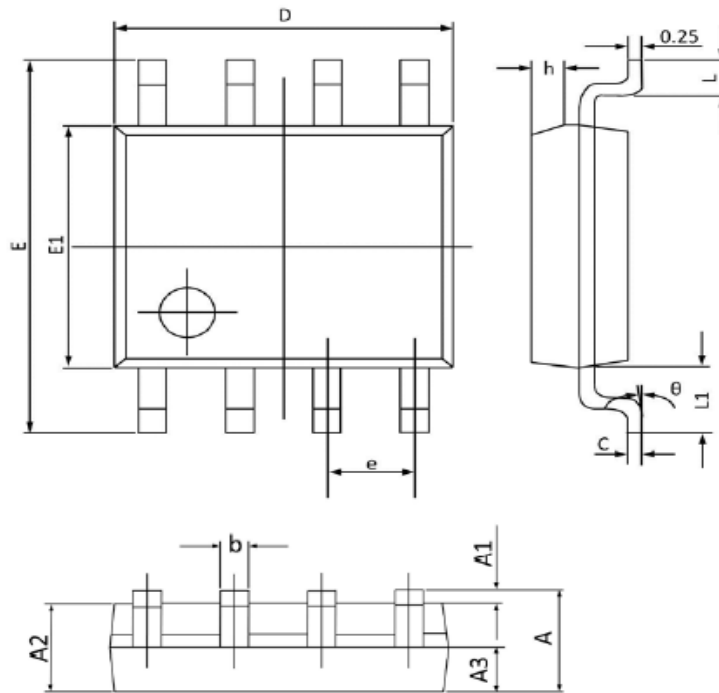


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

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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