

GSM8987W

80V N-Channel Enhancement Mode MOSFET

Product Description

GSM8987W, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

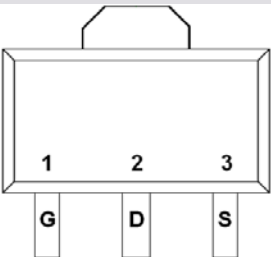
Features

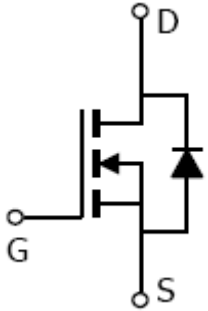
- 80V/4.6A, $R_{DS(ON)}=75m\Omega@V_{GS}=10V$
- 80V/3.6A, $R_{DS(ON)}=85m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-89-3L package design

Applications

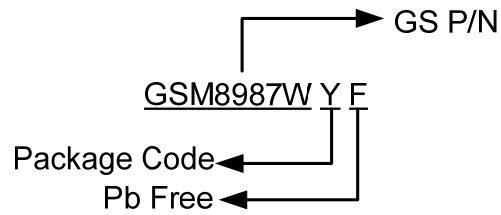
- Motor and Load Control
- Power Management in White LED System
- Push Pull Converter
- LCD TV Inverter & AD/DC Inverter Systems.

Packages & Pin Assignments

GSM8987WYF(SOT-89-3L)	
	
Pin	Description
1	Gate
2	Drain
3	Source

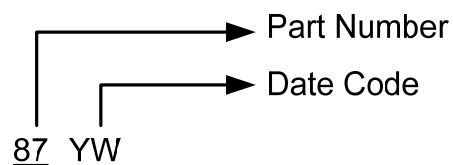


Ordering Information



Part Number	Package	Quantity Reel
GSM8987WYF	SOT-89-3L	1000 PCS

Marking Information



Absolute Maximum Ratings

$T_A=25^{\circ}\text{C}$ Unless otherwise noted

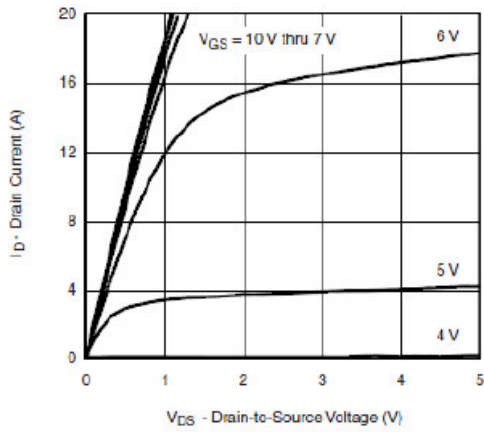
Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	90	V	
V_{GSS}	Gate –Source Voltage	± 20	V	
I_D	Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_A = 25^{\circ}\text{C}$	4.6	A
		$T_A = 70^{\circ}\text{C}$	3.6	
I_{DM}	Pulsed Drain Current	10	A	
I_S	Continuous Source Current(Diode Conduction)	1.6	A	
P_D	Power Dissipation	$T_A = 25^{\circ}\text{C}$	1.45	W
		$T_A = 70^{\circ}\text{C}$	0.6	
T_J	Operating Junction Temperature	150	$^{\circ}\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}\text{C}$	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	120	$^{\circ}\text{C}/\text{W}$	

Electrical Characteristics

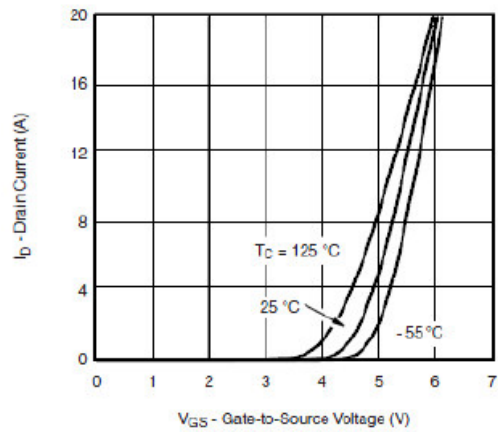
T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = 250uA	80			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = 250uA	1.0		2.5	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} = ±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 80V, V _{GS} =0V			1	uA
		V _{DS} =80V, V _{GS} =0V, T _J =85°C			5	
I _{D(on)}	On-State Drain Current	V _{DS} ≥ 5V, V _{GS} = 4.5V	10			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = 10V, I _D = 4.8A		61	75	mΩ
		V _{GS} = 4.5V, I _D = 3.6A		68	85	
g _{FS}	Forward Transconductance	V _{DS} = 15V, I _D = 5.3A		24		S
V _{SD}	Diode Forward Voltage	I _S = 2.0A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =5V, I _D =3A		12	18	nC
Q _{gs}	Gate-Source Charge			4.2		
Q _{gd}	Gate-Drain Charge			5.2		
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz		600		pF
C _{oss}	Output Capacitance			90		
C _{rss}	Reverse Transfer Capacitance			60		
t _{d(on)}	Turn-On Time	V _{DD} =50V, R _L =12.5Ω, I _D =3.0A, V _{GEN} =10V, R _G =1Ω		15	25	ns
t _r				15	25	
t _{d(off)}	Turn-Off Time			20	30	
t _f				15	25	

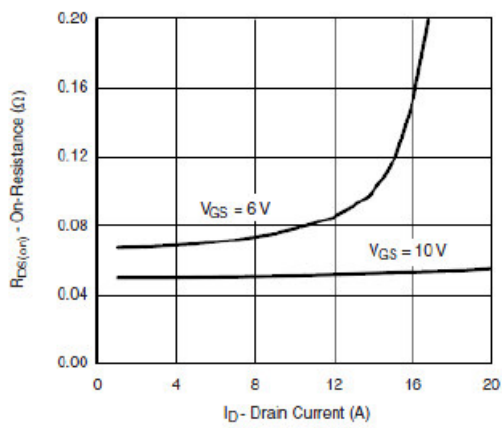
Typical Performance Characteristics



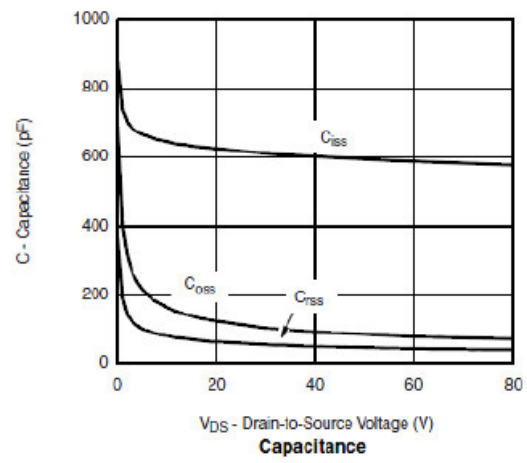
Output Characteristics



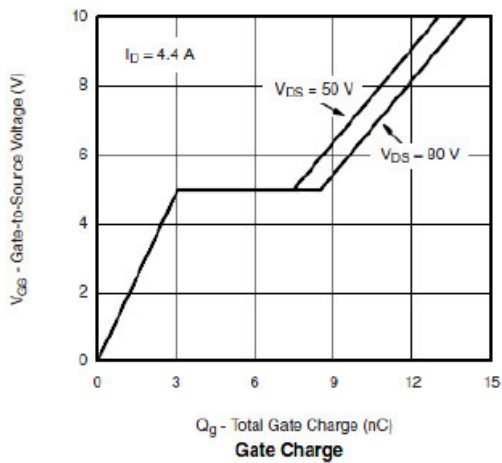
Transfer Characteristics



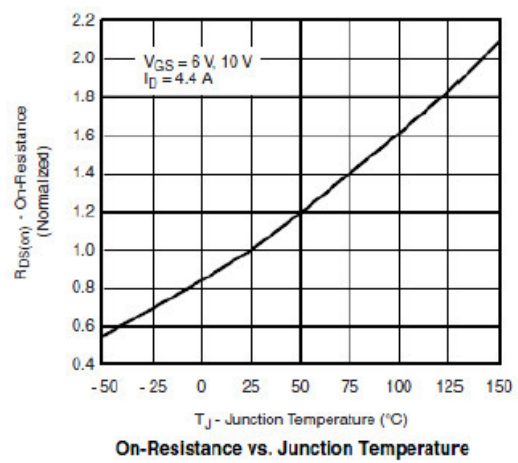
On-Resistance vs. Drain Current



Capacitance

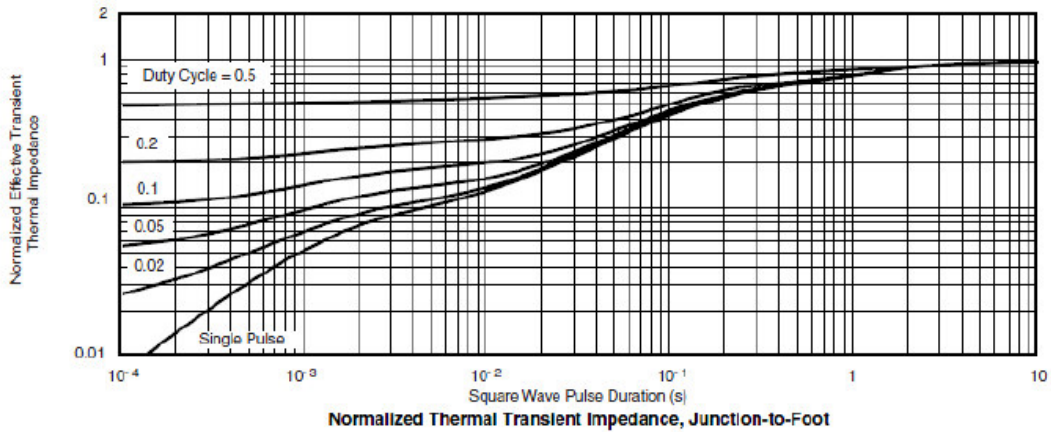
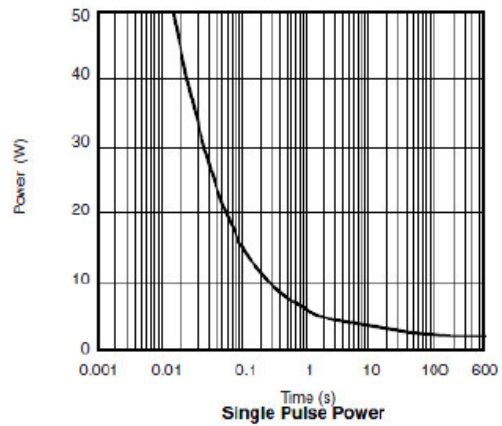
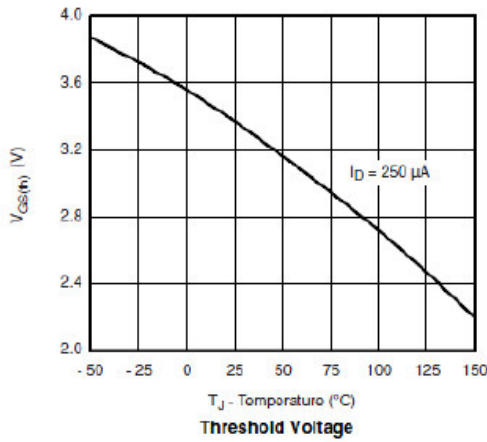
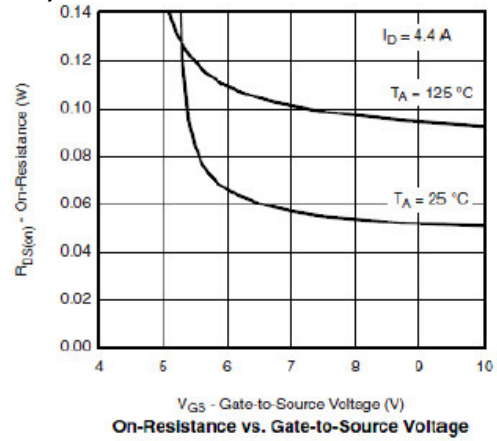
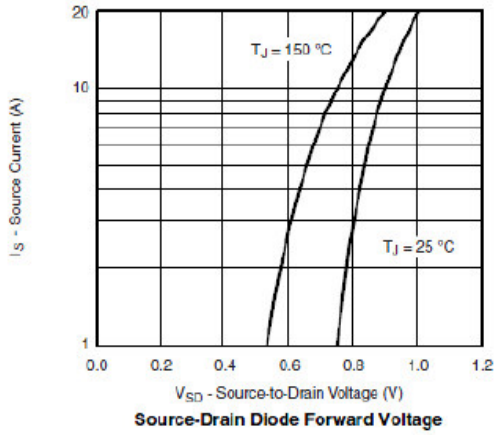


Gate Charge



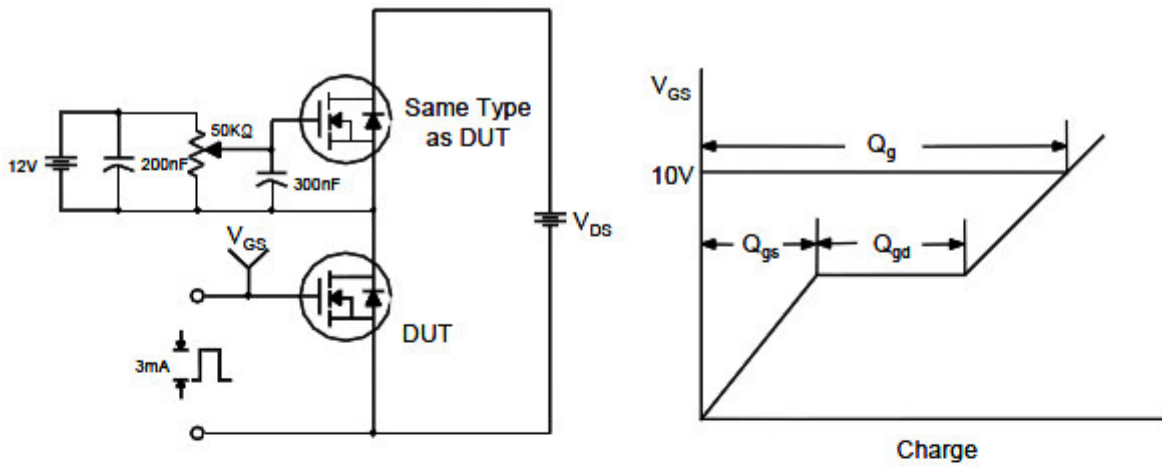
On-Resistance vs. Junction Temperature

Typical Performance Characteristics (continue)

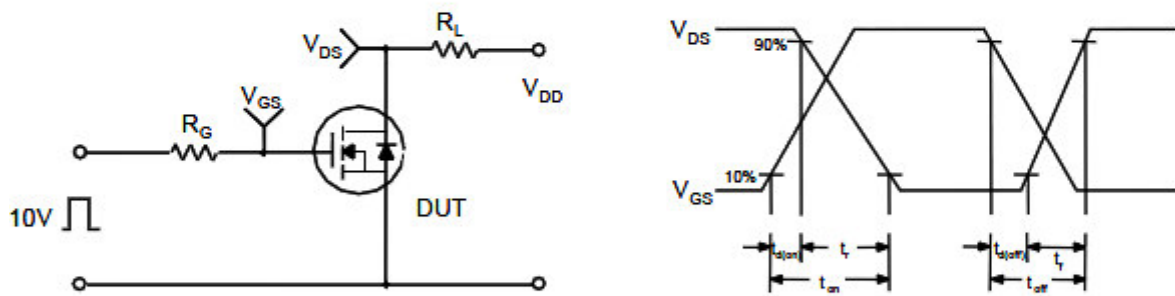


Typical Performance Characteristics (continue)

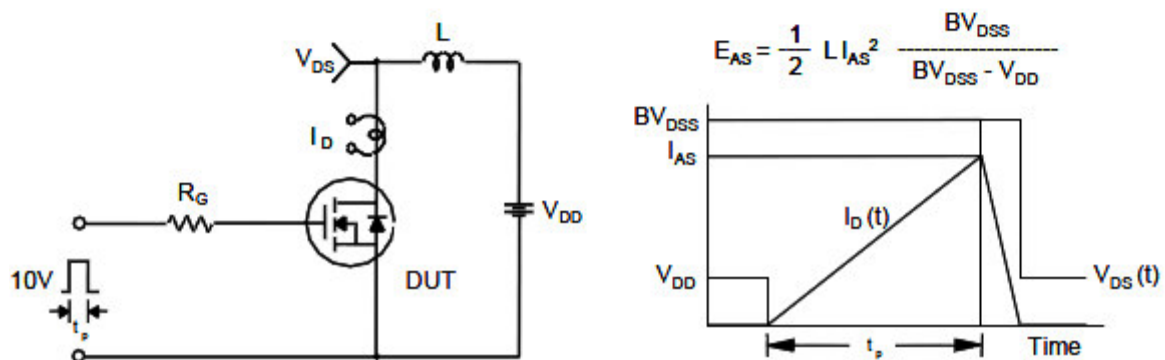
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

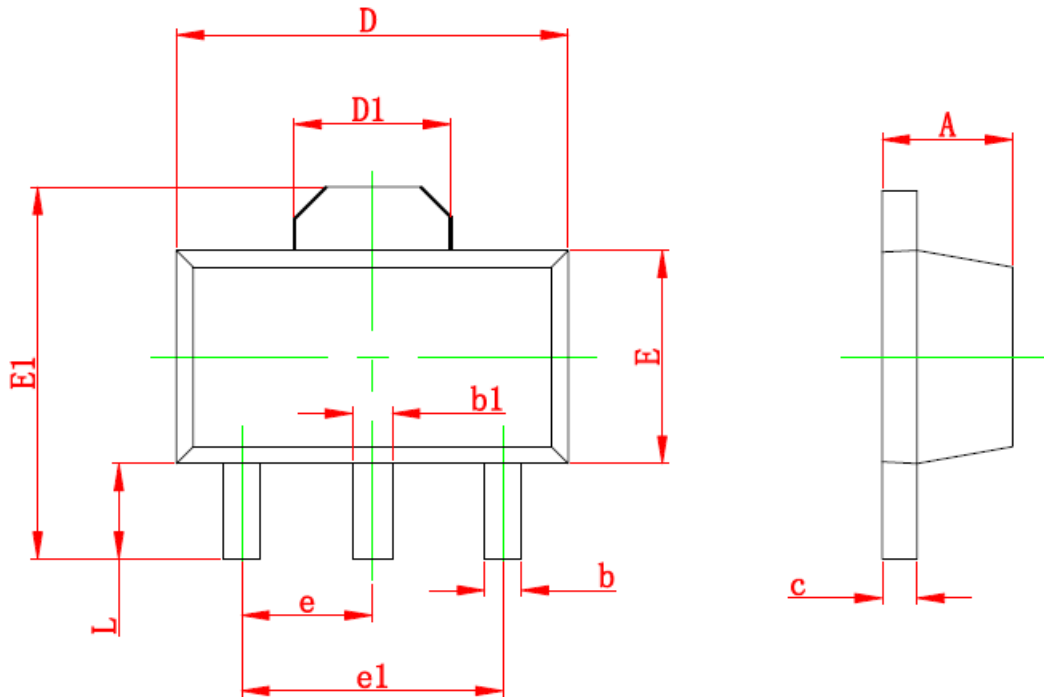


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOT-89-3L







Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 (REF)		0.061 (REF)	
E	2.30	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.50 (TYP)		0.060 (TYP)	
e1	3.00 (TYP)		0.118 (TYP)	
L	0.900 (TYP)	1.200	0.035	0.047



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