

GSM4998W

100V N-Channel Enhancement Mode MOSFET

Product Description

GSM4998W, 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.

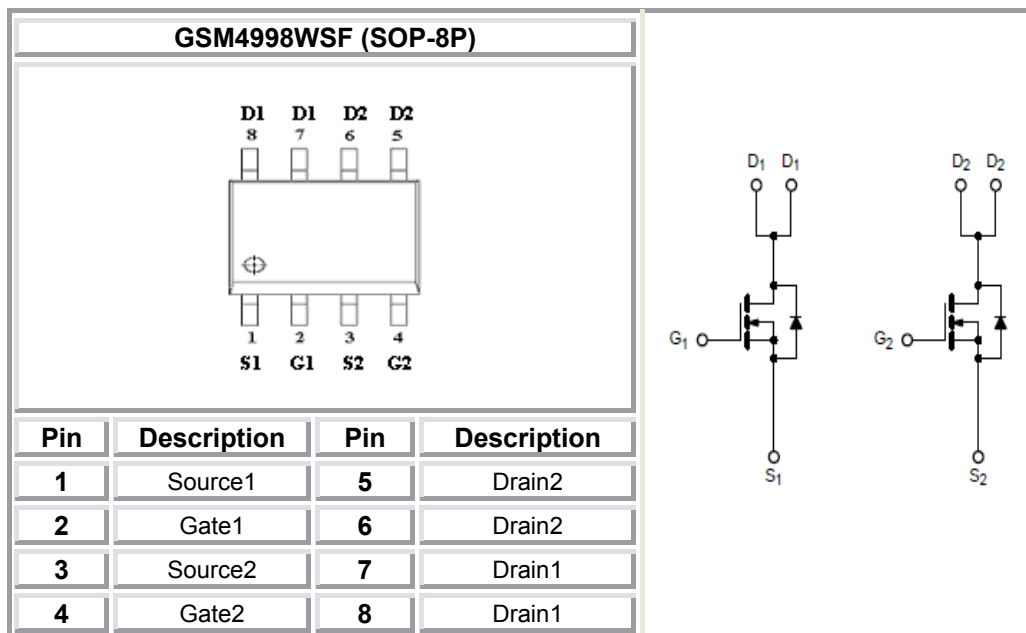
Features

- 100V/5.6A, $R_{DS(ON)}=120m\Omega@V_{GS}=10V$
- 100V/4.2A, $R_{DS(ON)}=130m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOP-8P package design

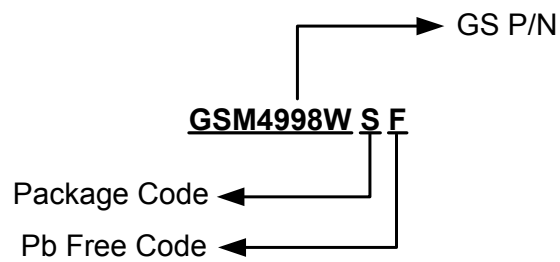
Applications

- Motor and Load Control
- AD/DC Inverter Systems
- Power Management in White LED System

Packages & Pin Assignments

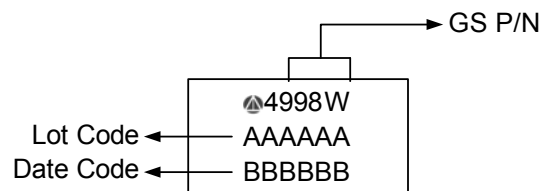


Ordering Information



Part Number	Package	Quantity Reel
GSM4998WSF	SOP-8P	2500 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

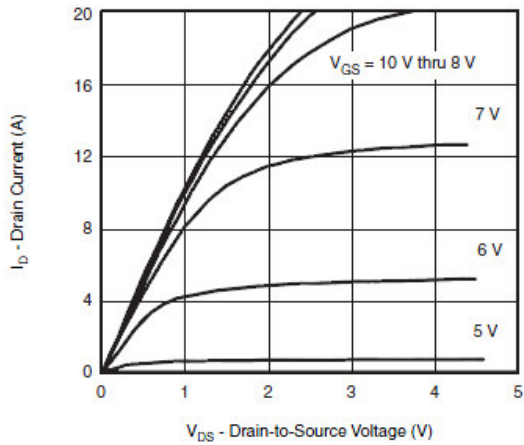
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	100	V	
V _{GSS}	Gate -Source Voltage	±20	V	
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	5.4	A
		T _A =70°C	4.2	
I _{DM}	Pulsed Drain Current	30	A	
I _S	Continuous Source Current(Diode Conduction)	1.5	A	
P _D	Power Dissipation	T _A =25°C	2.8	W
		T _A =70°C	1.8	
T _J	Operating Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55/150	°C	
R _{θJA}	Thermal Resistance-Junction to Ambient	62.5	°C/ W	

Electrical Characteristics

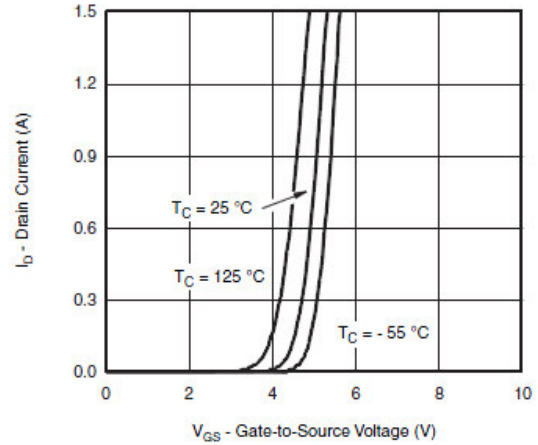
(T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
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	μA
		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	30			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =5.6A		110	120	mΩ
		V _{GS} =4.5V, I _D =4.2A		114	130	
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						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz		550		pF
C _{oss}	Output Capacitance			80		
C _{rss}	Reverse Transfer Capacitance			50		
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =5V, I _D =5A		10	15	nC
Q _{gs}	Gate-Source Charge			4.0		
Q _{gd}	Gate-Drain Charge			5.0		
t _{d(on)}	Turn-On Time	V _{DD} =50V, R _L =12.5Ω, I _D =5.0A V _{GEN} =10V, R _G =1.0Ω		10	20	ns
t _r				10	20	
t _{d(off)}	Turn-Off Time			15	25	
t _f				10	25	

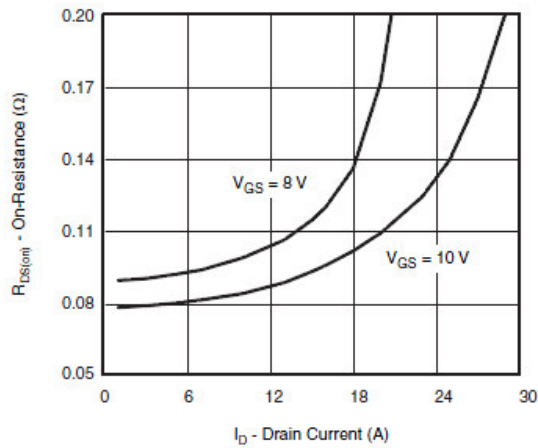
Typical Performance Characteristics



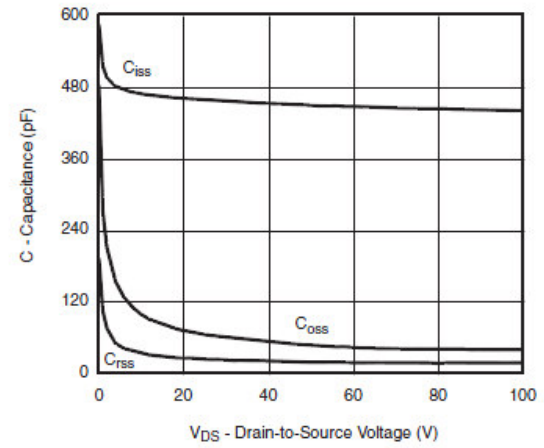
Output Characteristics



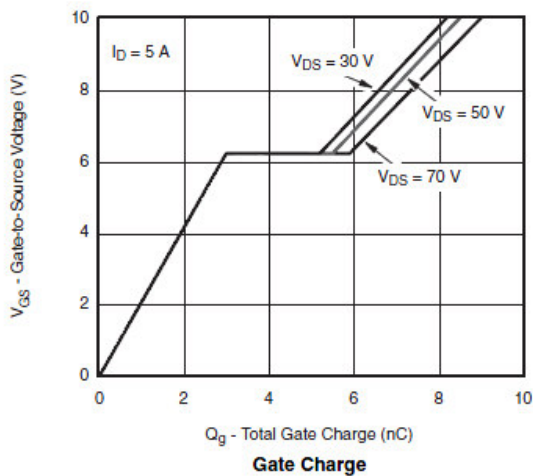
Transfer Characteristics



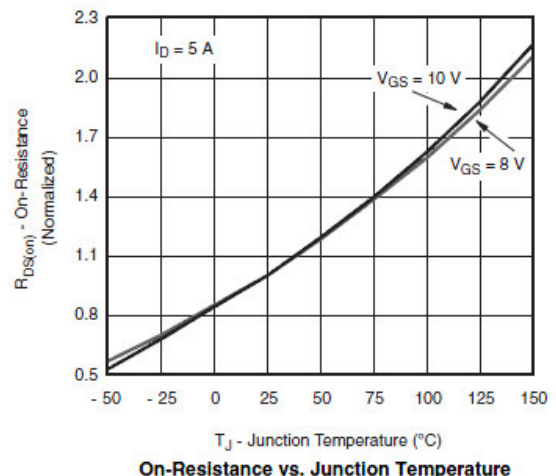
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

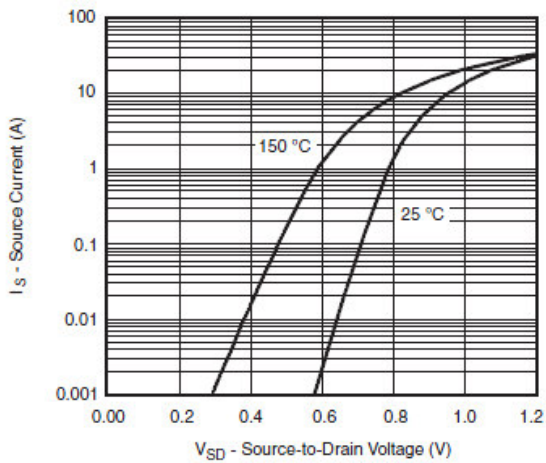


Gate Charge

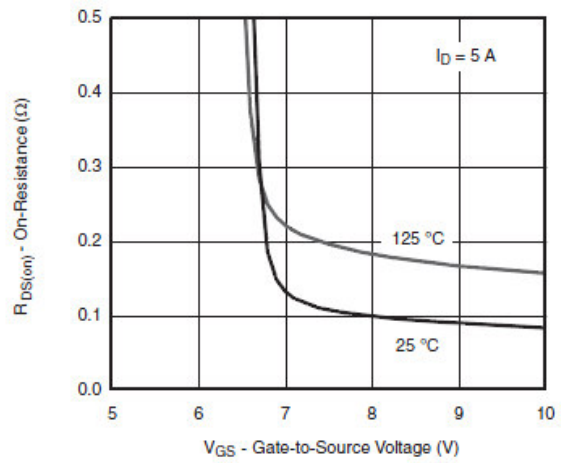


On-Resistance vs. Junction Temperature

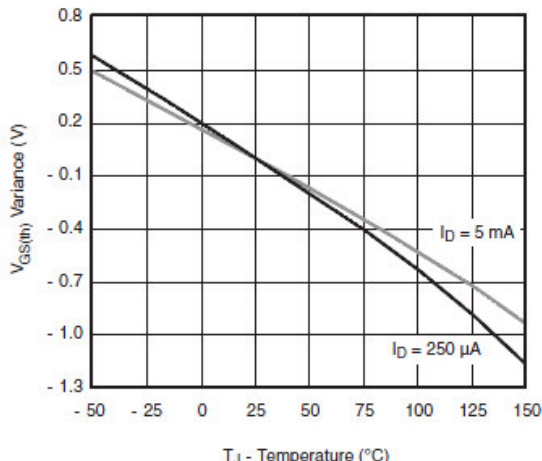
Typical Performance Characteristics (continue)



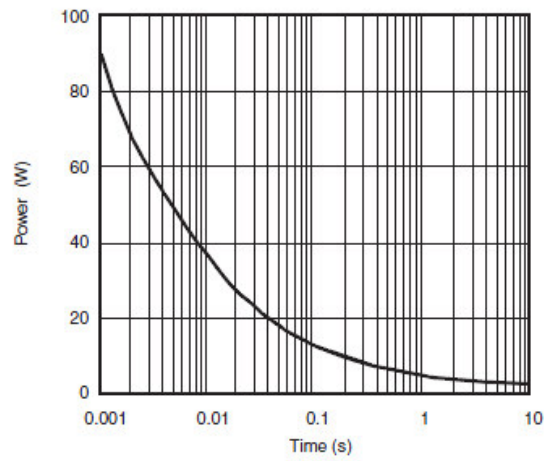
Source-Drain Diode Forward Voltage



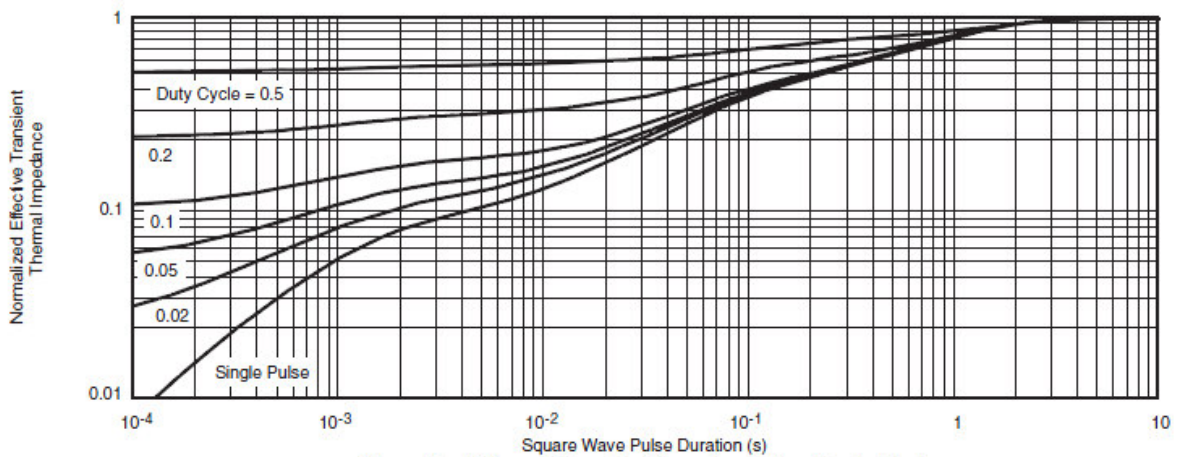
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



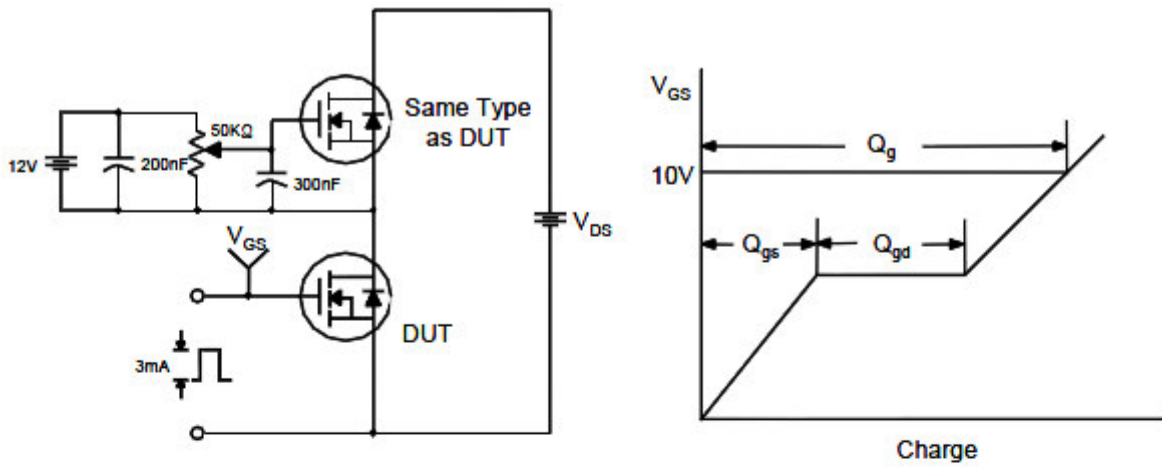
Single Pulse Power, Junction-to-Ambient



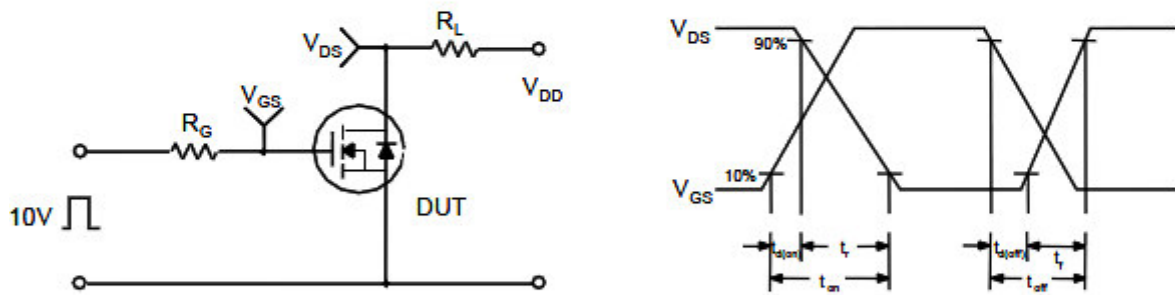
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Performance Characteristics (continue)

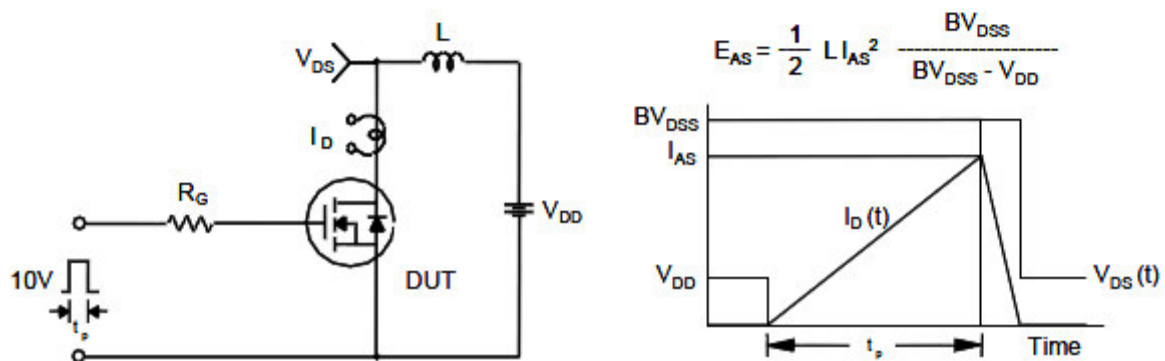
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

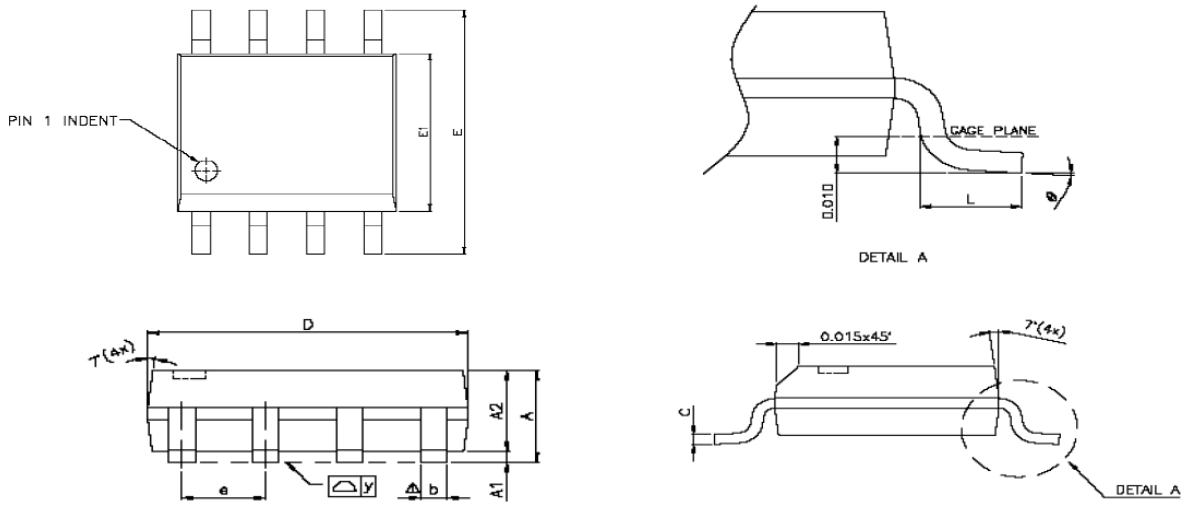


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOP-8P







Dimensions

Symbol	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	-	0.25	0.004	-	0.010
A2	-	1.45	-	-	0.057	-
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	-	1.27	-	-	0.050	-
L	0.38	0.71	1.27	0.015	0.028	0.050
Δy	-	-	0.076	-	-	0.003
θ	0°	-	8°	0°	-	8°

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