

# GSM4925W

## 30V P-Channel Enhancement Mode MOSFET

### Product Description

GSM4925W, P-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.

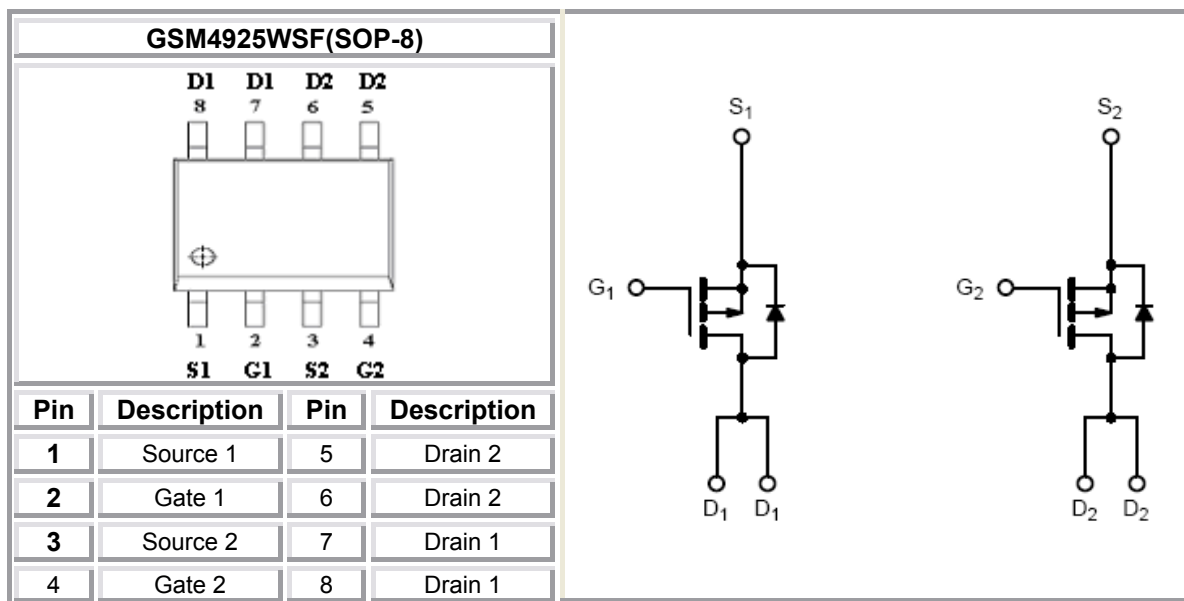
### Features

- $-30V/-7.2A, R_{DS(ON)} = 30m\Omega @ V_{GS} = -10V$
- $-30V/-5.8A, R_{DS(ON)} = 36m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- SOP-8P package design

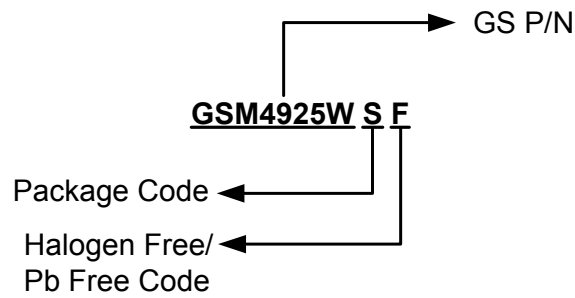
### Applications

- LED Display
- Load Switch
- CCFL Inverter
- Power Management in Notebook Computer,

### Packages & Pin Assignments

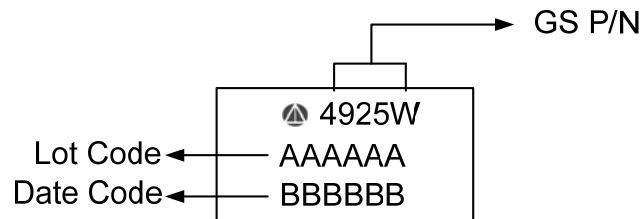


## Ordering Information



Part Number	Package	Quantity Reel
GSM4925WSF	SOP-8	2500 PCS

## Marking Information



## Absolute Maximum Ratings

(T<sub>A</sub>=25°C unless otherwise noted)

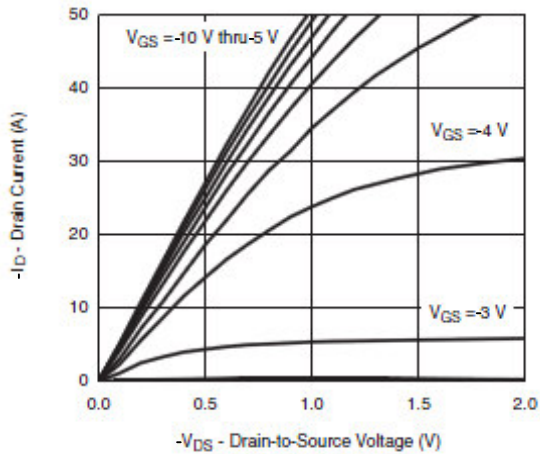
Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	-30	V
V <sub>GSS</sub>	Gate -Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	-7.2
		T <sub>A</sub> =70°C	-5.8
I <sub>DM</sub>	Pulsed Drain Current	-30	A
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	-1.7	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	2.8
		T <sub>A</sub> =70°C	1.8
T <sub>J</sub>	Operating Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C
R <sub>θJA</sub>	Thermal Resistance-Junction to Ambient	62.5	°C/ W

## Electrical Characteristics

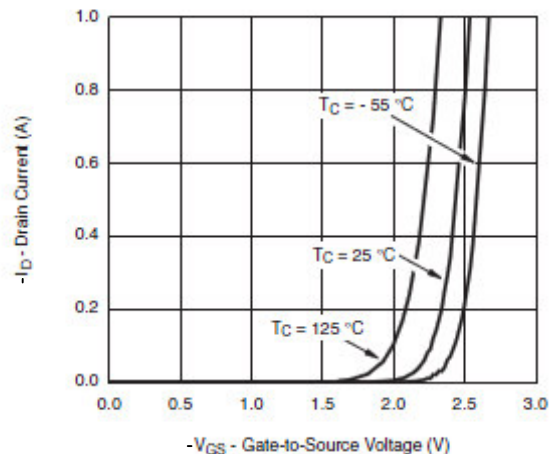
( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
<b>Static</b>							
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30			V	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5		-1.8		
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 16V$			$\pm 100$	nA	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$			-1	uA	
		$V_{DS}=-24V, V_{GS}=0V, T_J=85^\circ\text{C}$			-30		
$I_{D(on)}$	On-State Drain Current	$V_{DS}\leq -10V, V_{GS}=-10V$	-20			A	
		$V_{DS}\leq -5V, V_{GS}=-4.5V$	-5				
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-7.2A$		26	30	m $\Omega$	
		$V_{GS}=-4.5V, I_D=-5.8A$		32	36		
$g_{fs}$	Forward Transconductance	$V_{DS}=-10V, I_D=-5.8A$		22		S	
$V_{SD}$	Diode Forward Voltage	$I_S=-1.7A, V_{GS}=0V$		-0.7	-1.3	V	
<b>Dynamic</b>							
$C_{iss}$	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$		950		pF	
$C_{oss}$	Output Capacitance			200			
$C_{riss}$	Reverse Transfer Capacitance			175			
$Q_g$	Total Gate Charge	$V_{DS}=-15V, V_{GS}=-4.5V, I_D=-6.0A$		10	18	nC	
$Q_{gs}$	Gate-Source Charge			1.6			
$Q_{gd}$	Gate-Drain Charge			3.0			
$t_{d(on)}$	Turn-On Time	$V_{DD}=-15V, R_L=15\Omega, I_D=-5.0A, V_{GEN}=-10V, R_G=6\Omega$		8	18	ns	
$T_r$				8	18		
$t_{d(off)}$			Turn-Off Time		25		50
$T_f$					25		35

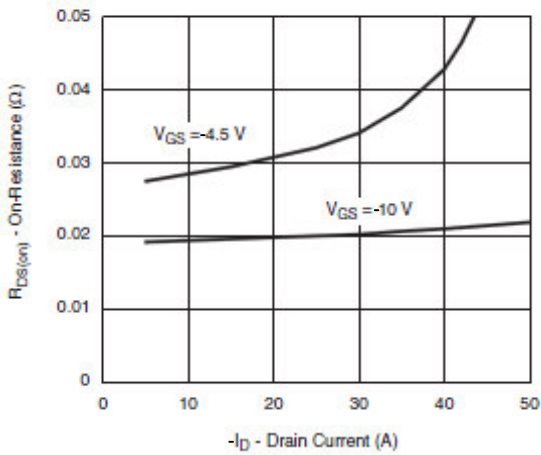
## Typical Performance Characteristics



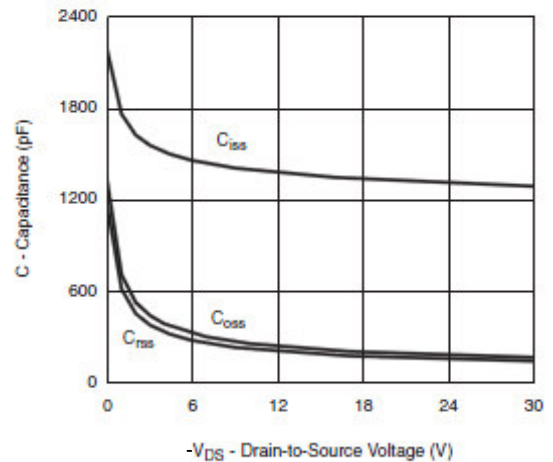
Output Characteristics



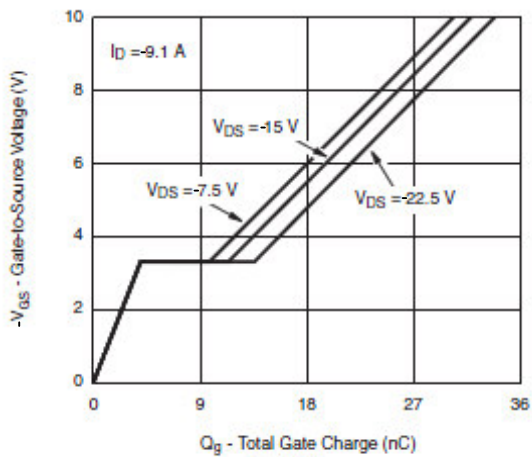
Transfer Characteristics



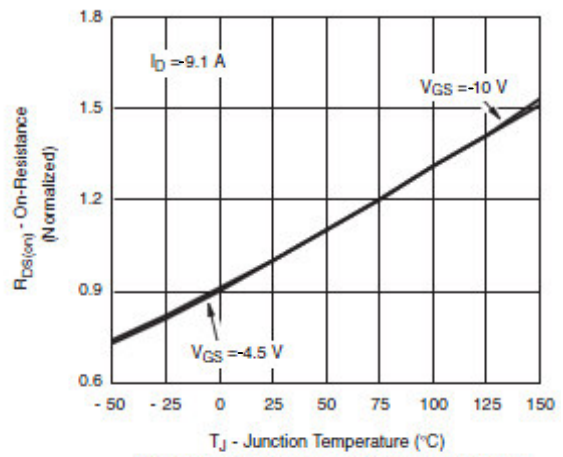
On-Resistance vs. Drain Current



Capacitance

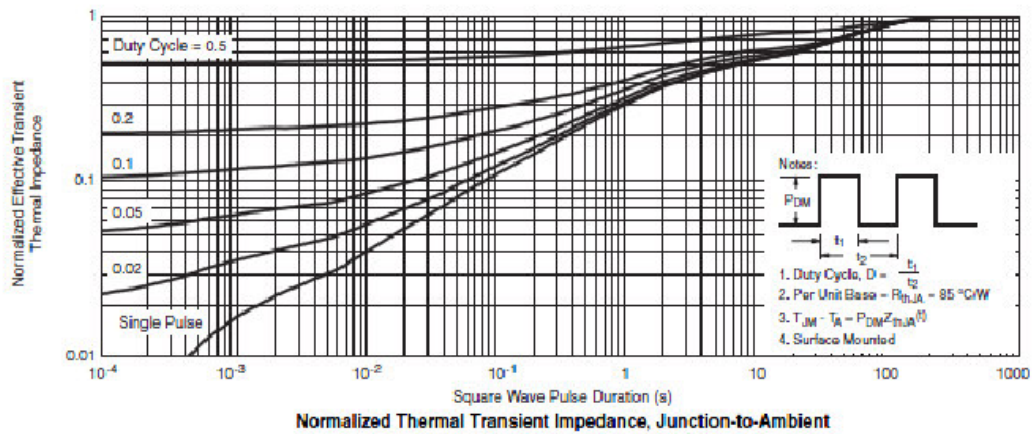
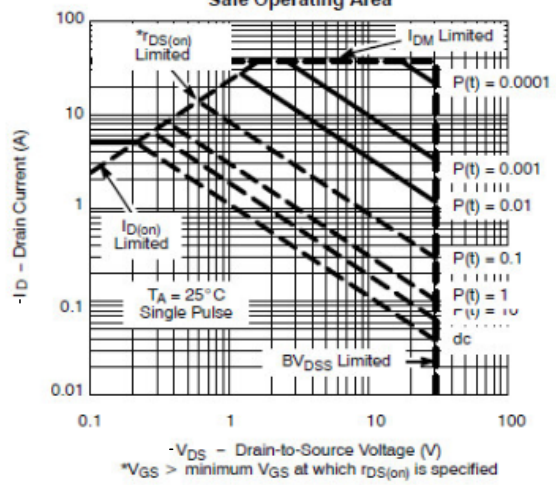
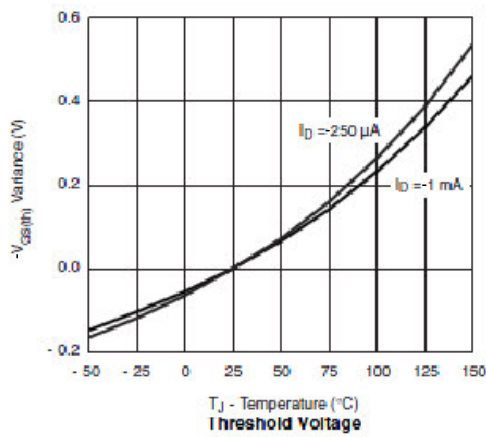
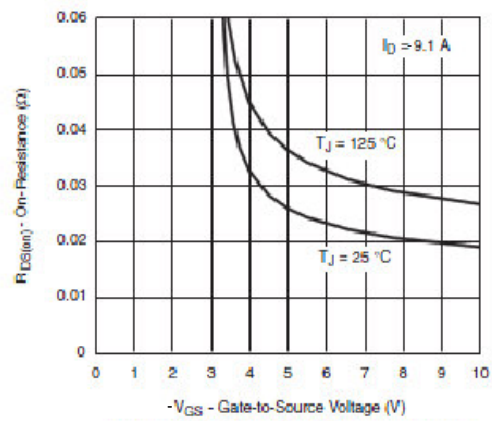
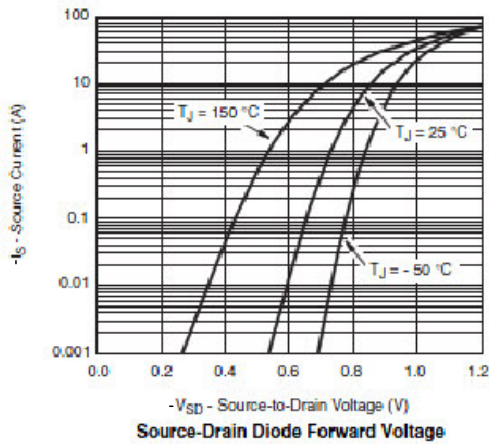


Gate Charge



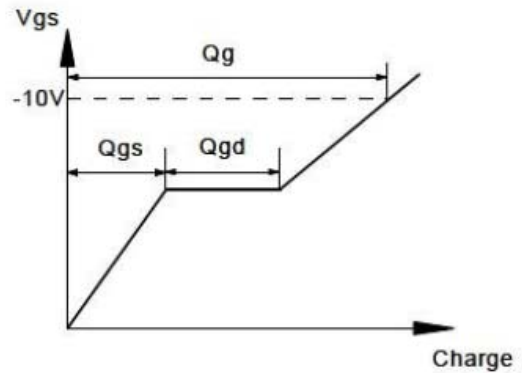
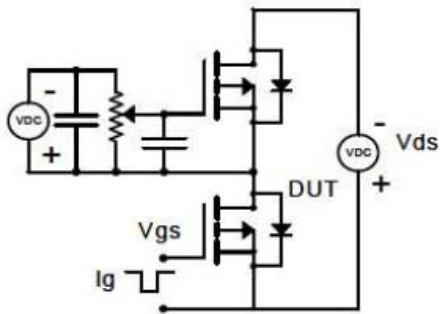
On-Resistance vs. Junction Temperature

## Typical Performance Characteristics (continue)

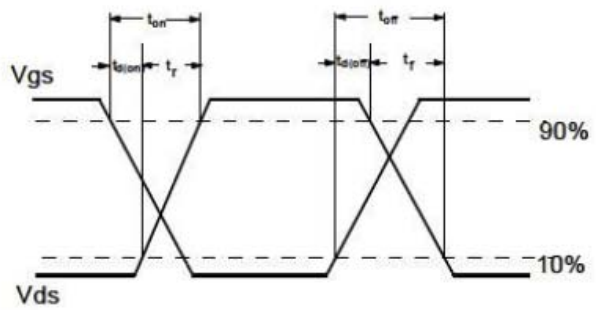
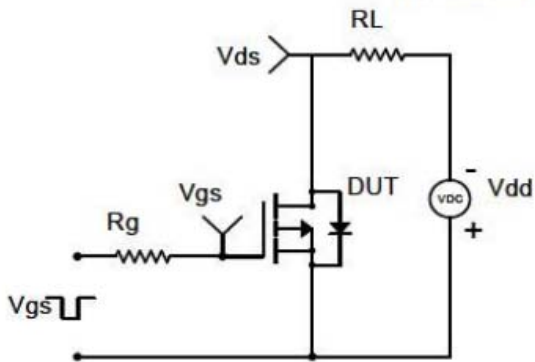


## Typical Performance Characteristics (continue)

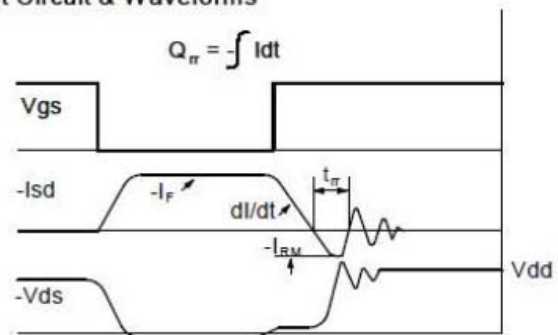
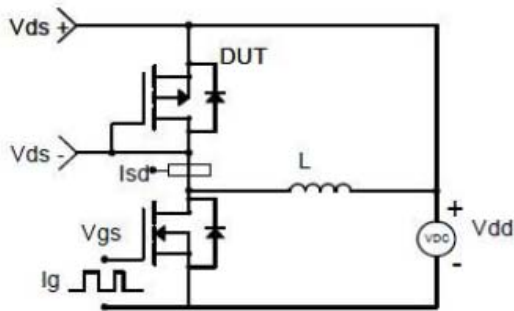
### Gate Charge Test Circuit & Waveform



### Resistive Switching Test Circuit & Waveforms

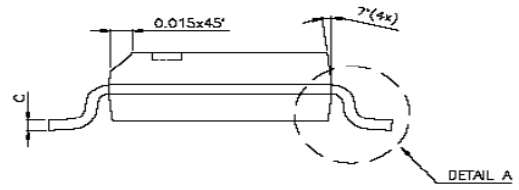
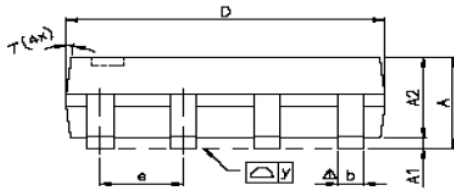
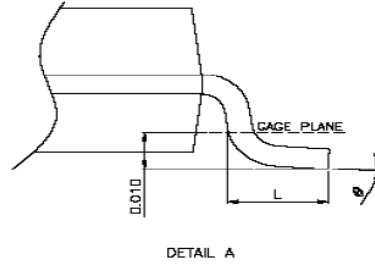
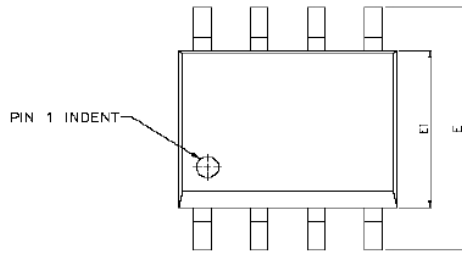


### Diode Recovery Test Circuit & Waveforms



Package Dimension

# SOP-8P PLASTIC PACKAGE







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
$\Delta y$	-	-	0.076	-	-	0.003
$\theta$	0°	-	8°	0°	-	8°




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