GSM9997

100V N-Channel Enhancement Mode MOSFET

Product Description

GSM9997, 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

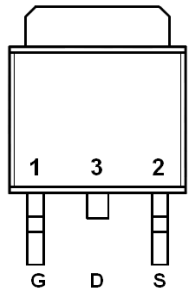
- 100V/8A,$R_{DS(ON)}$=120mΩ@V_{GS}=10V
- 100V/6A,$R_{DS(ON)}$=125mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- TO-252-2L package design

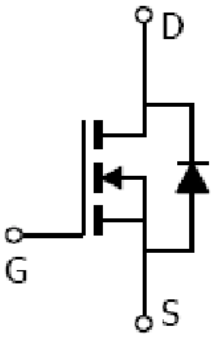
Applications

- High Frequency Boost Converter
- LED Backlight for LCD TV

Packages & Pin Assignments

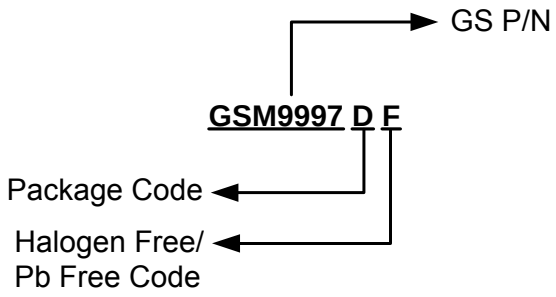
GSM9997DF(TO-252-2L)





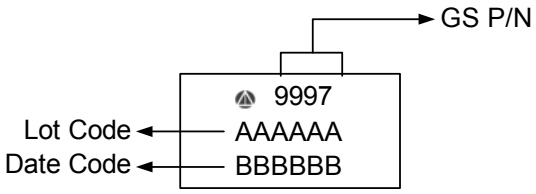
Pin	Description
1	Gate
2	Source
3	Drain

Ordering Information



Part Number	Package	Quantity Reel
GSM9997DF	TO-252-2L	2500 PCS

Marking Information



Absolute Maximum Ratings

T_A=25ºC unless otherwise noted

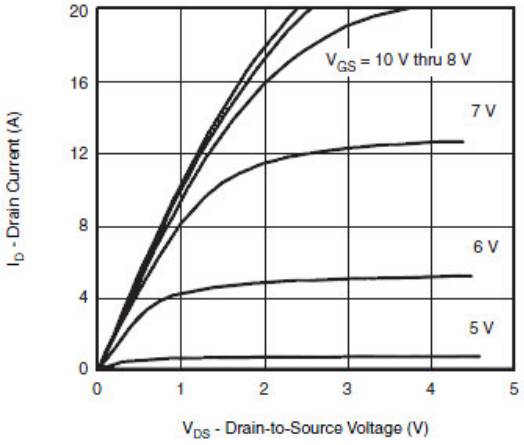
Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate –Source Voltage		±20	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25ºC	10	A
		T_A=70ºC	6	
I_{DM}	Pulsed Drain Current		30	
I_S	Continuous Source Current(Diode Conduction)		8	
I_{AS}	Single Pulse Avalanche Current		10	
P_D	Power Dissipation	T_A=25ºC	40	W
		T_A=70ºC	15	
T_J	Operating Junction Temperature		150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	ºC/ W

Electrical Characteristics

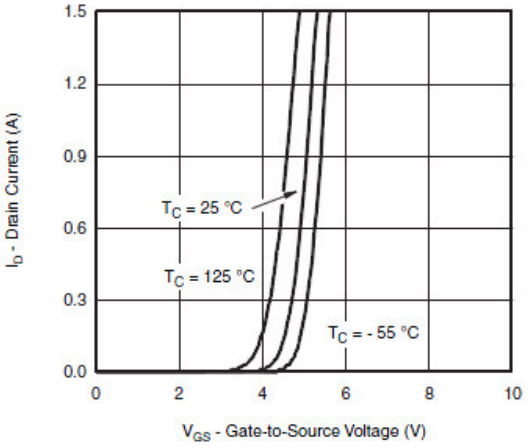
T_A=25ºC unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	100			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	1.0		3.0	
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=85ºC			5	
$I_{D(on)}$	On-State Drain Current	V_{DS}≥5V,V_{GS}=4.5V	15			A
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V,I_D=8A		112	120	mΩ
		V_{GS}=4.5V,I_D=6A		117	125	
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		450		pF
C_{oss}	Output Capacitance			50		
C_{rss}	Reverse Transfer Capacitance			25		
Q_g	Total Gate Charge	V_{DS}=50V, V_{GS}=10V,I_D=8A		10	15	nC
Q_{gs}	Gate-Source Charge			2.0		
Q_{gd}	Gate-Drain Charge			6.0		
$t_{d(on)}$	Turn-On Time	V_{DD}=50V, R_L=5Ω,I_D=5.0A, V_{GEN}=10V,R_G=3.3Ω		6	15	ns
t_r				8	15	
$t_{d(off)}$	Turn-Off Time			15	20	
t_f				5	15	

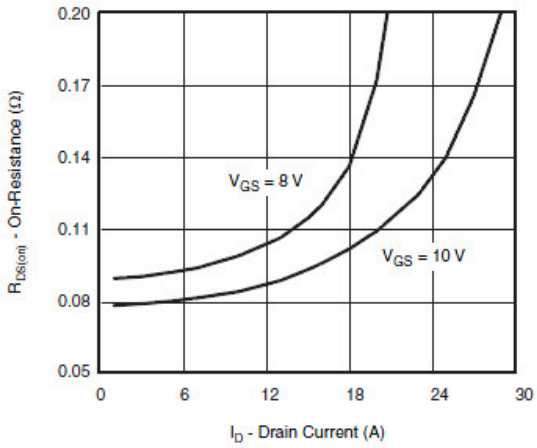
Typical Performance Characteristics



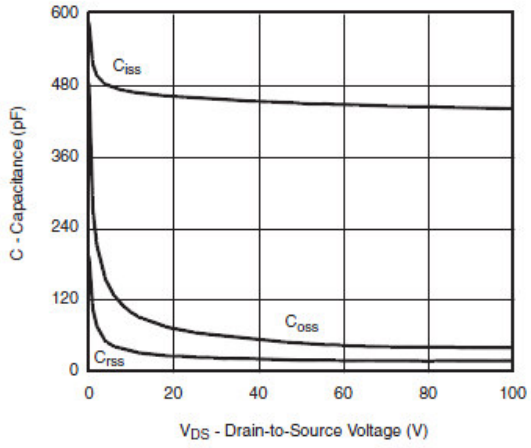
Output Characteristics



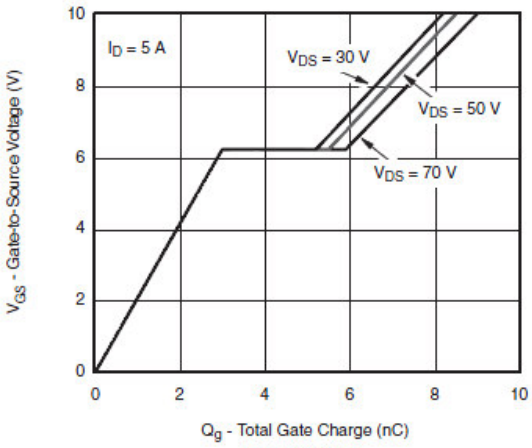
Transfer Characteristics



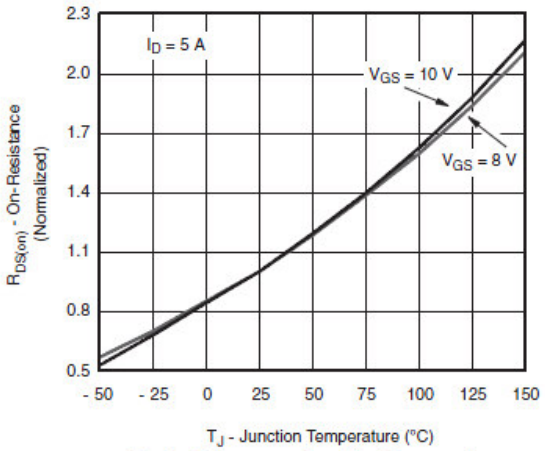
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

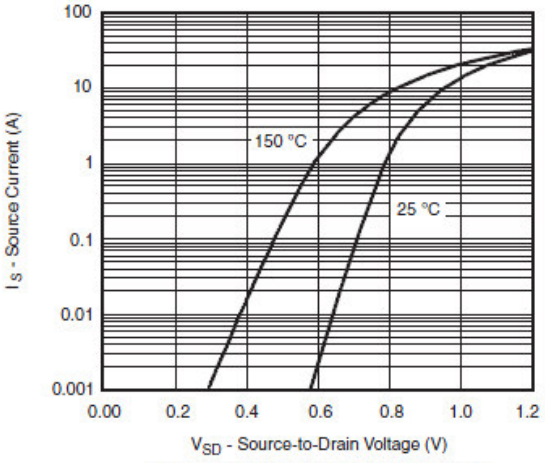


Gate Charge

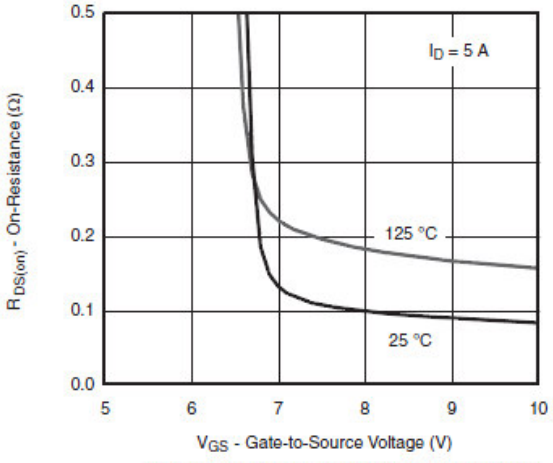


On-Resistance vs. Junction Temperature

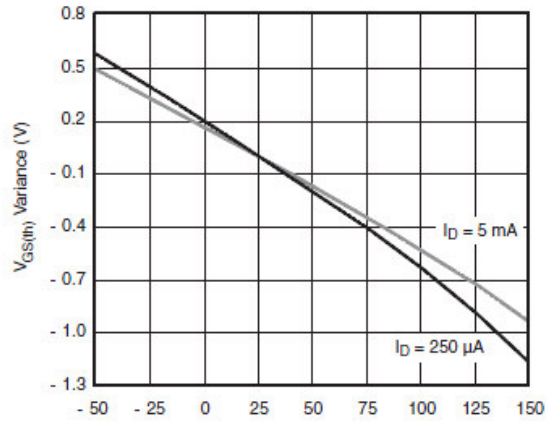
Typical Performance Characteristics (continue)



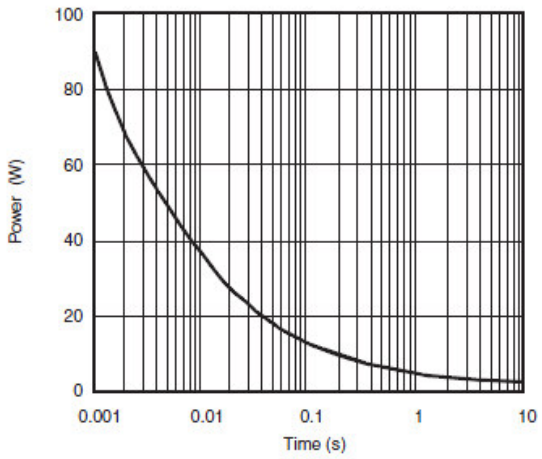
Source-Drain Diode Forward Voltage



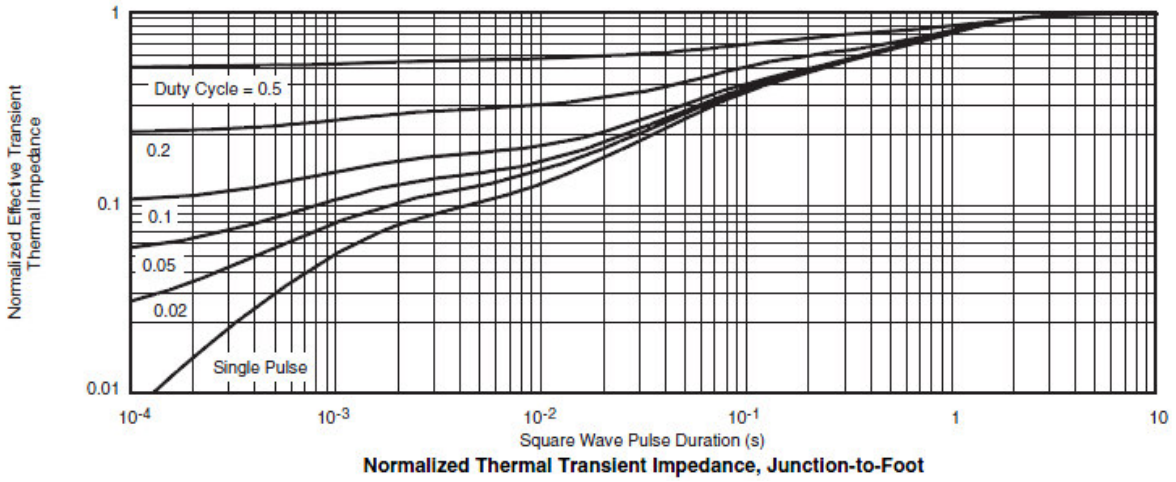
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



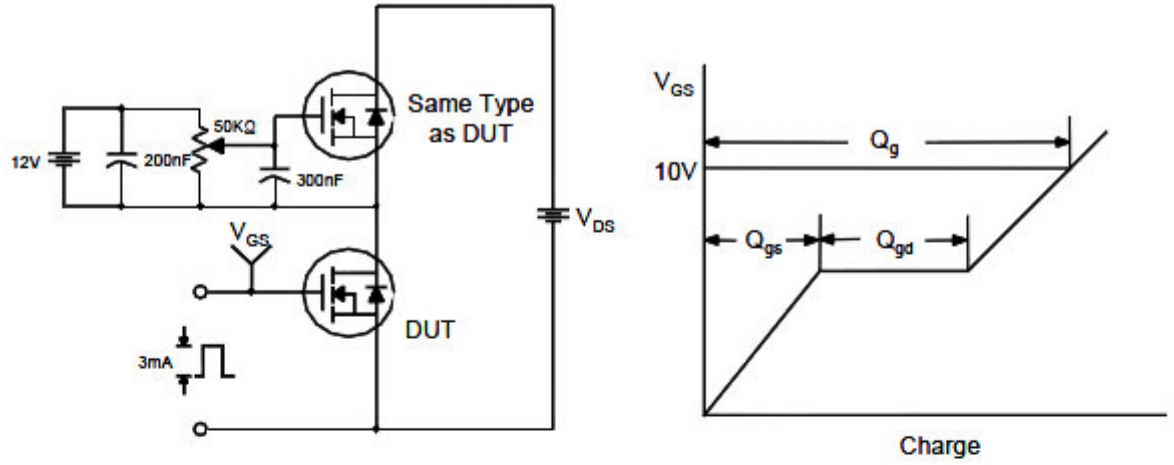
Single Pulse Power, Junction-to-Ambient



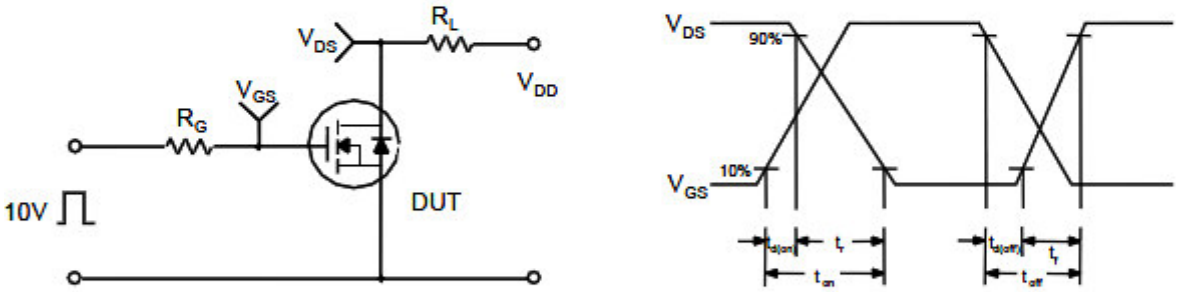
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Performance Characteristics (continue)

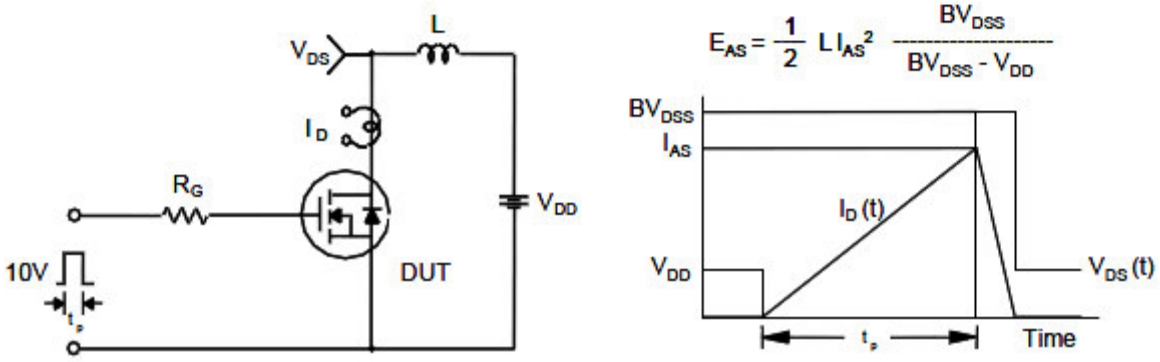
Gate Charge Test Circuit & Waveform



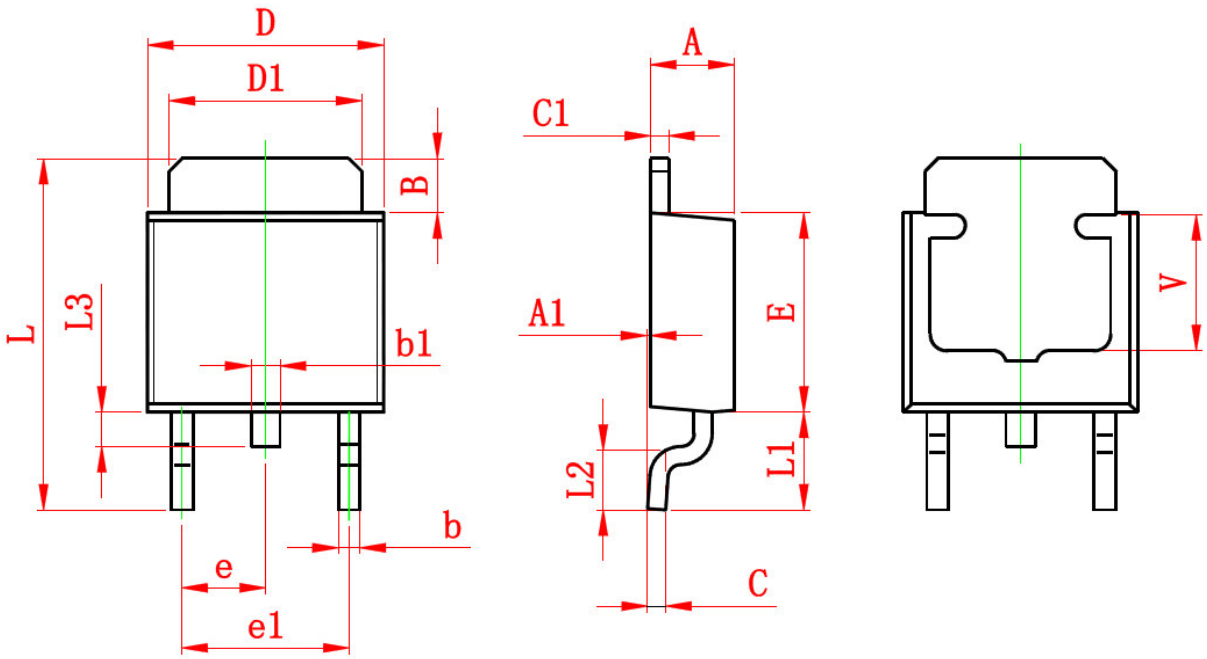
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



TO-252-2L PLASTIC PACKAGE



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF		0.150 REF	

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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Wu-Xi Branch	
	No.21 Changjiang Rd., WND, Wuxi, Jiangsu, China (INFO. &. TECH. Science Park Building A 210 Room)
	86-510-85217051
	86-510-85211238
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587