

GSM4447

40V P-Channel Enhancement Mode MOSFET

Product Description

GSM4447, 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.

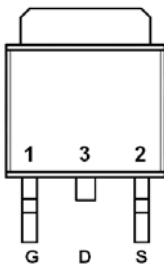
Features

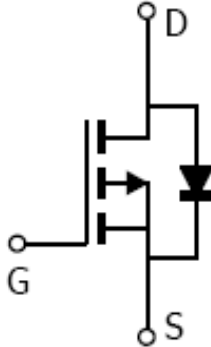
- -40V/-10A, $R_{DS(ON)}=40m\Omega@V_{GS}=-10V$
- -40V/-8A, $R_{DS(ON)}=55m\Omega@V_{GS}=-4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- TO-252-2L package design

Applications

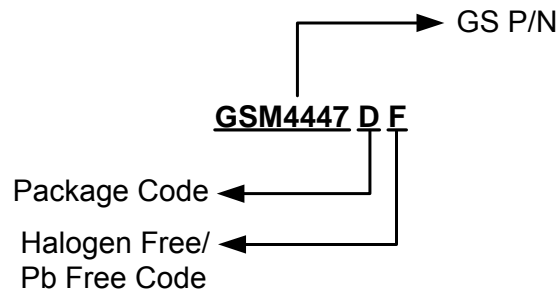
- Backlight Inverter for LCD Display
- Full Bridge DC/DC Converter
- LED Display
- Load Switch
- CCFL Inverter

Packages & Pin Assignments

GSM4447DF(TO-252-2L)	
	
Pin	Description
1	Gate
2	Source
3	Drain

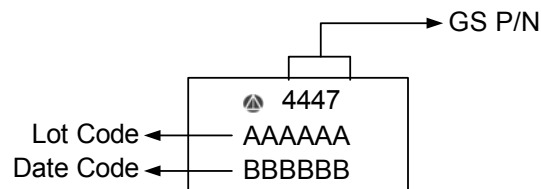


Ordering Information



Part Number	Package	Quantity Reel
GSM4447DF	TO-252-2L	2500 PCS

Marking Information



Absolute Maximum Ratings

T_A=25°C unless otherwise noted

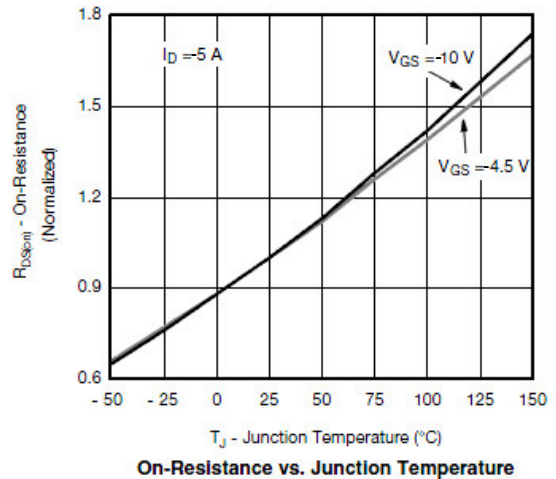
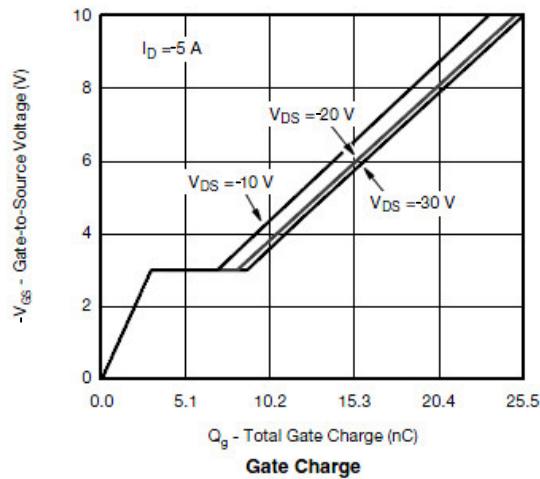
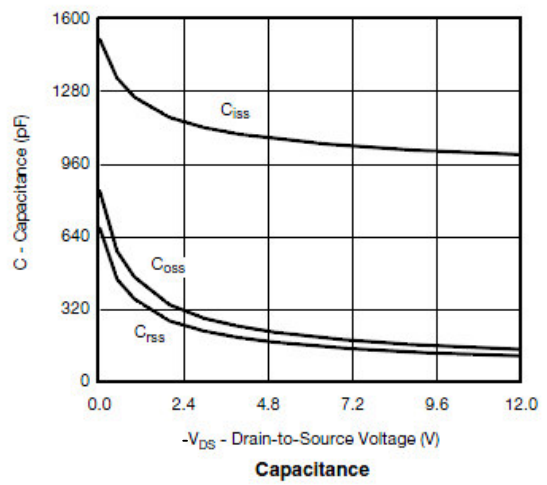
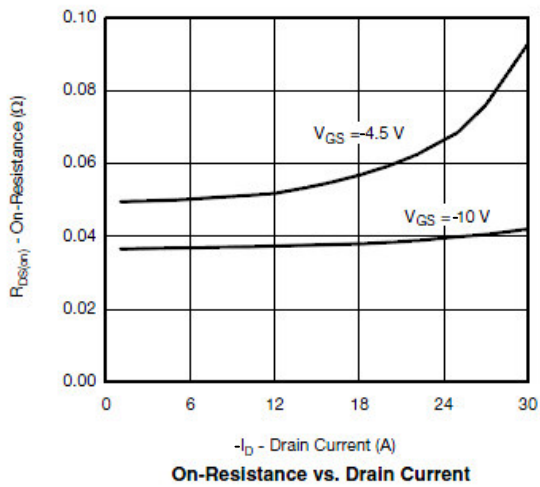
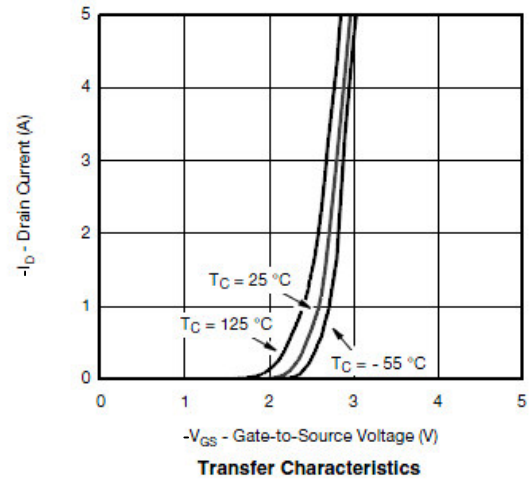
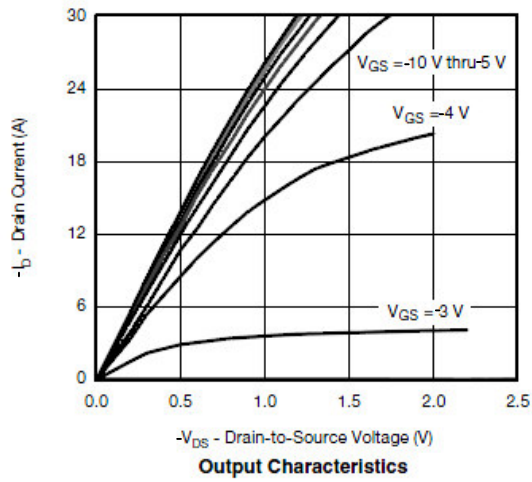
Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	-40	V
V _{GSS}	Gate -Source Voltage	±20	V
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	-22
		T _A =70°C	-16
I _{DM}	Pulsed Drain Current	-30	A
I _S	Continuous Source-Drain Diode Current	-8	
I _{AS}	Single Pulse Avalanche Current	-30	A
E _{AS}	Avalanche Energy		35
P _D	Power Dissipation	T _A =25°C	40
		T _A =70°C	15
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

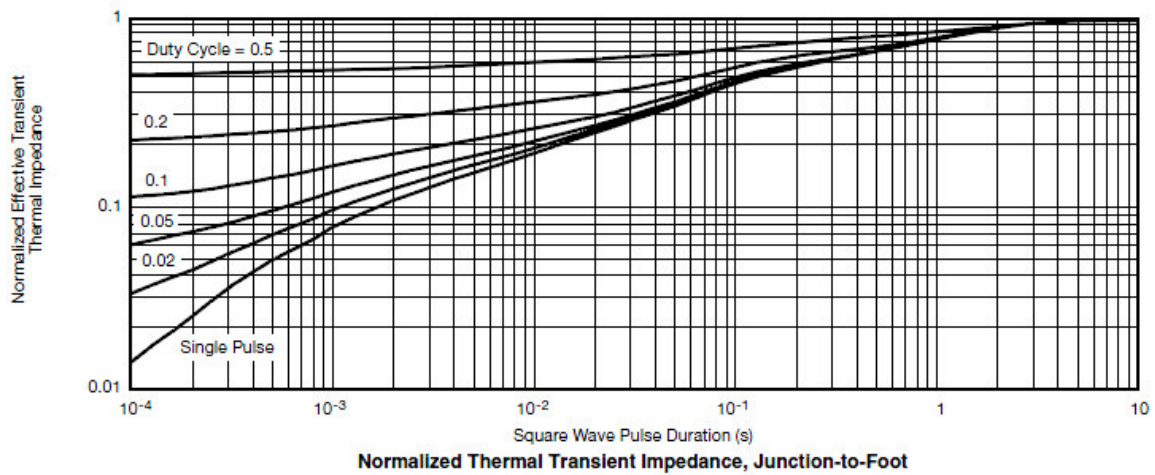
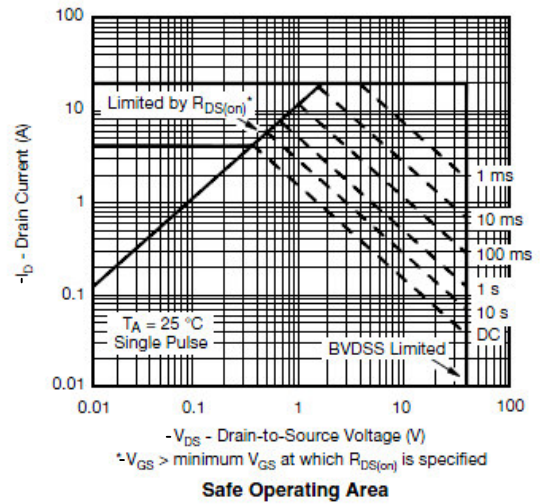
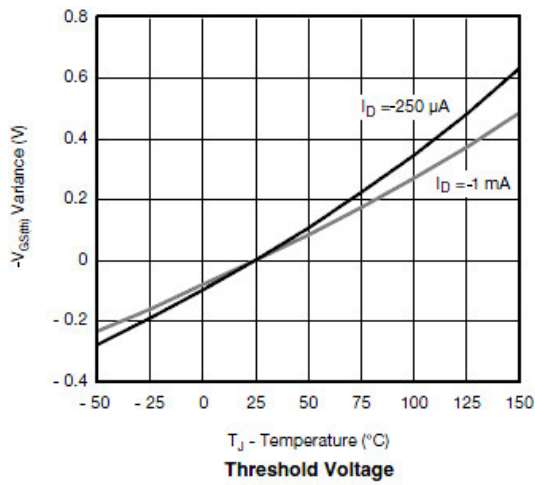
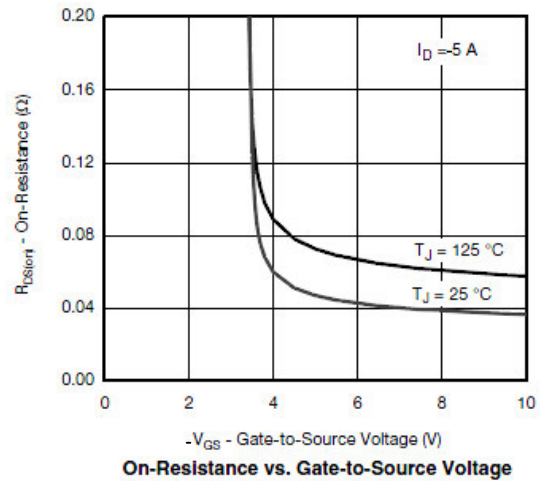
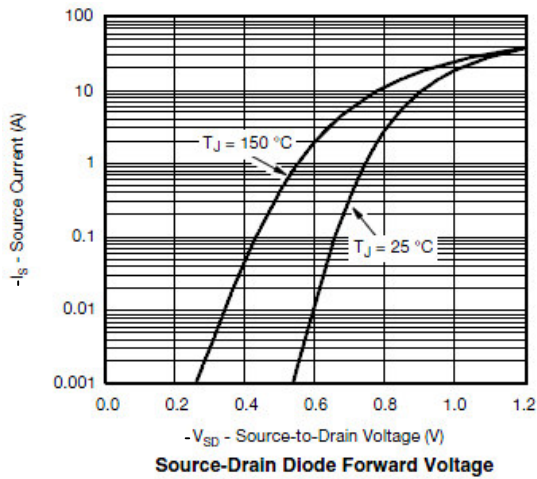
T_A=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-40			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} =-40V, V _{GS} =0V			-1	uA
		V _{DS} =-40V, V _{GS} =0V, T _J =85°C			-20	
I _{D(on)}	On-State Drain Current	V _{DS} ≤ -5V, V _{GS} =-10V	-20			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-10A		30	40	mΩ
		V _{GS} =-4.5V, I _D =-8A		42	55	
g _{fs}	Forward Transconductance	V _{DS} =-15V, I _D =-5A		20		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} =-20V, V _{GS} =0V, f=1MHz		970		pF
C _{oss}	Output Capacitance			120		
C _{rss}	Reverse Transfer Capacitance			95		
Q _g	Total Gate Charge	V _{DS} =-20V, V _{GS} =-4.5V, I _D =-5.0A		11	18	nC
Q _{gs}	Gate-Source Charge			3.5		
Q _{gd}	Gate-Drain Charge			5.5		
td(on)	Turn-On Time	V _{DD} =-20V, R _L =4Ω, I _D =-5.0A, V _{GEN} =-4.5V, R _G =1Ω		40	80	ns
tr				35	65	
td(off)	Turn-Off Time			30	55	
tf				13	25	

Typical Performance Characteristics

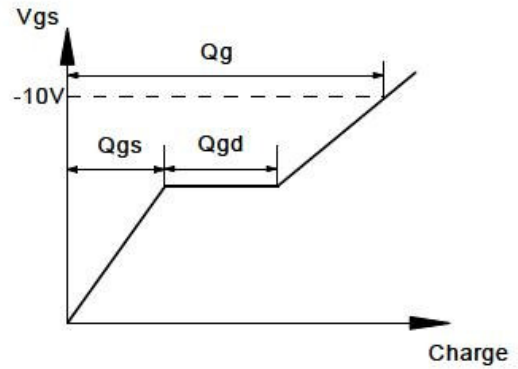
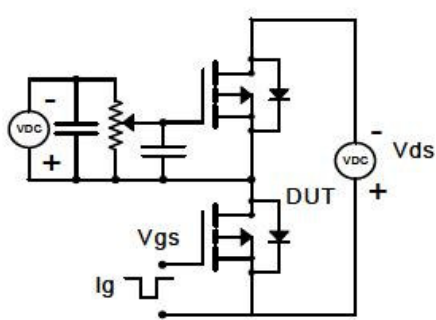


Typical Performance Characteristics (continue)

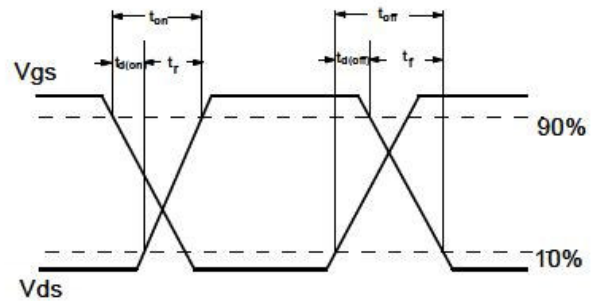
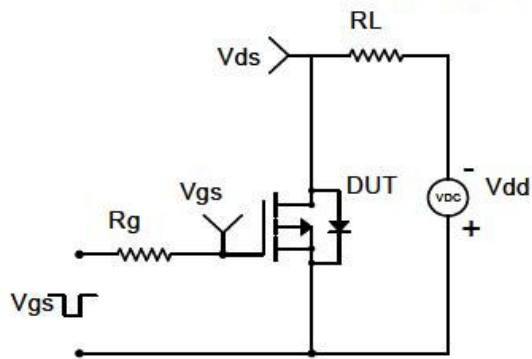


Typical Performance Characteristics (continue)

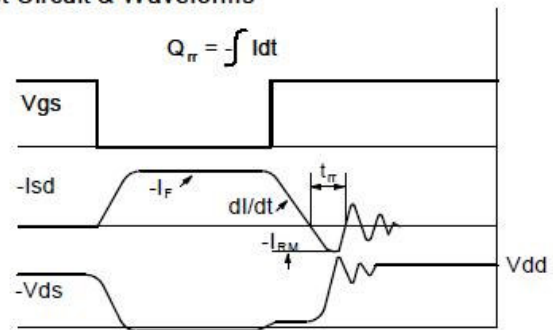
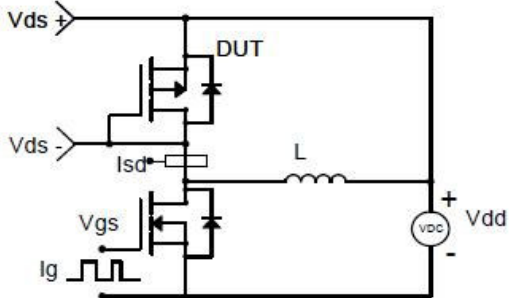
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

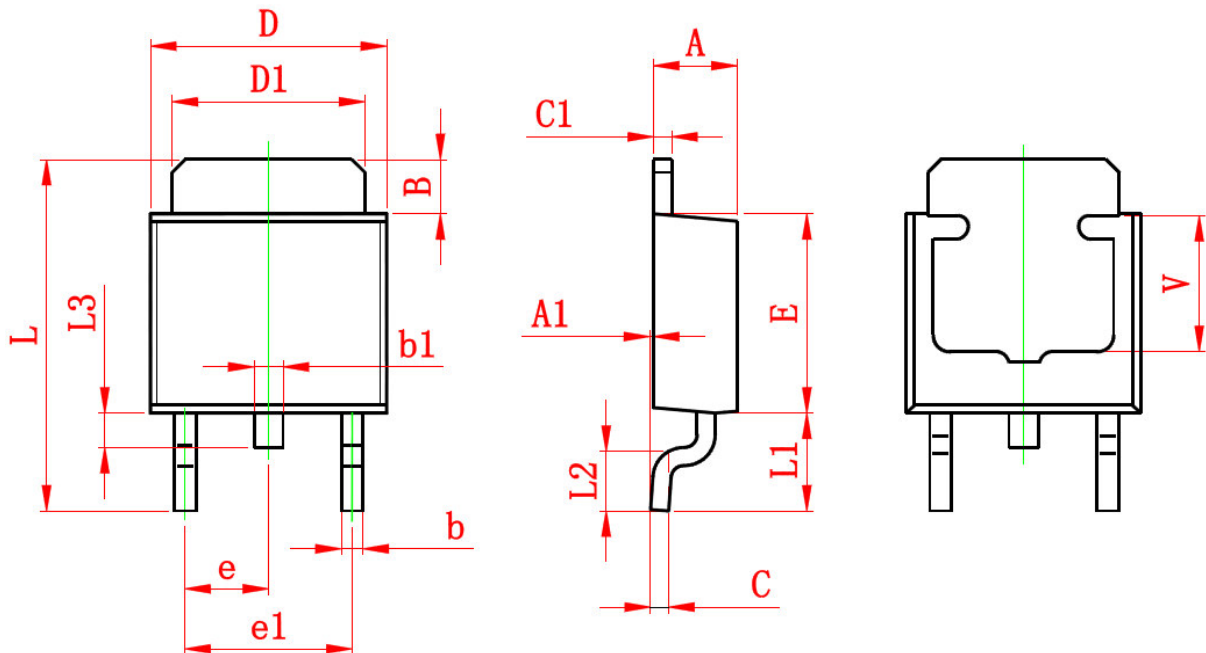


Diode Recovery Test Circuit & Waveforms



Package Dimension

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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