

GSM7424S

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM7424S, 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, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

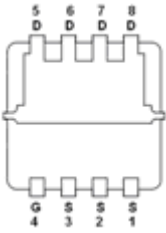
Features

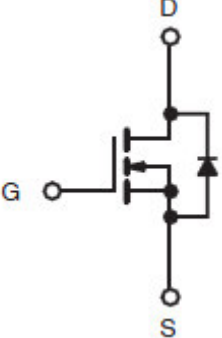
- 30V/20A, $R_{DS(ON)}=5m\Omega@V_{GS}=10V$
- 30V/15A, $R_{DS(ON)}=7m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN3.3X3.3-8L package design

Applications

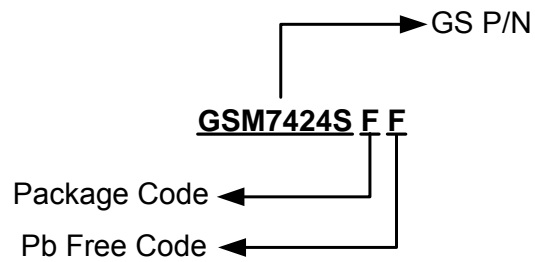
- DC-DC Converter
- POL

Packages & Pin Assignments

GSM7424SFF (DFN3.3X3.3-8L)	
 <p>Bottom View</p>	
Pin	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain

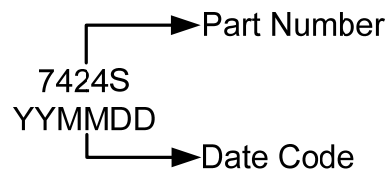


Ordering Information



Part Number	Package	Quantity Reel
GSM7424SFF	DFN3.3X3.3-8L	5000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

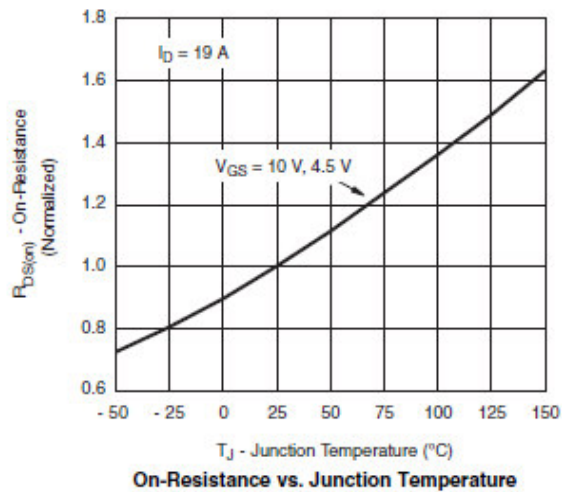
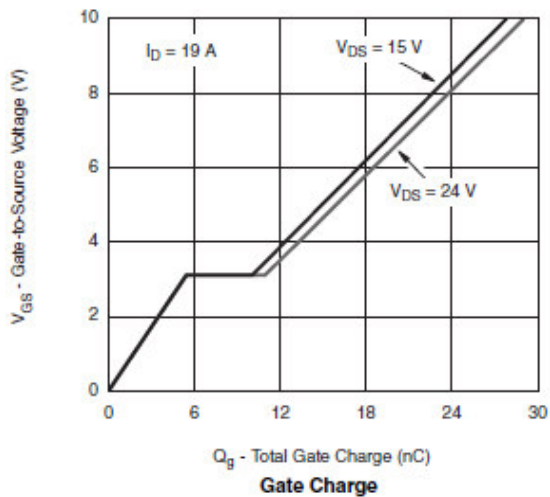
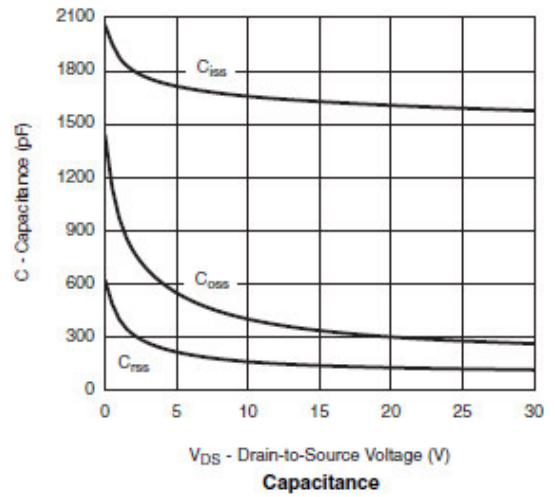
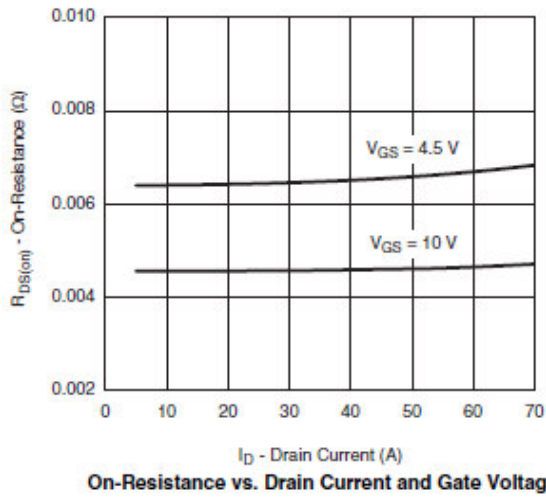
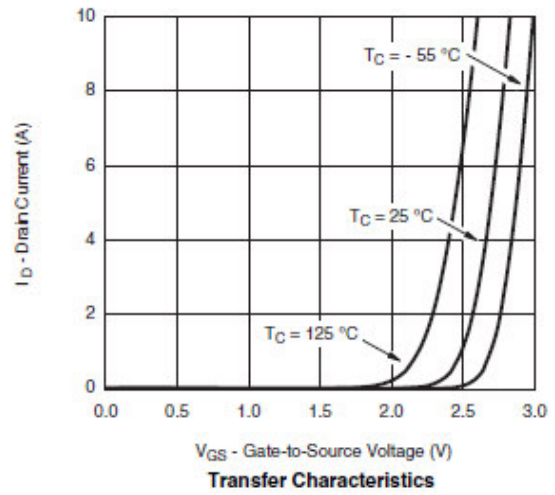
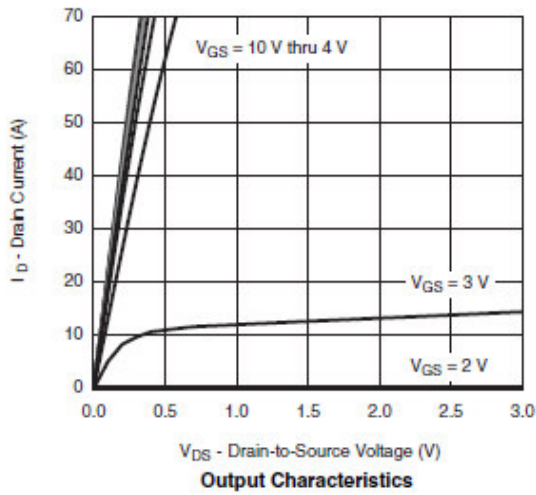
Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate –Source Voltage	±20	V
I _D	Continuous Drain Current (T _J =150°C)	T _A =25°C	20
		T _A =70°C	15
I _{DM}	Pulsed Drain Current	70	A
I _S	Continuous Source Current (Diode Conduction)	40	A
P _D	Power Dissipation	T _A =25°C	3.8
		T _A =70°C	2
T _J	Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	120	°C/W

Electrical Characteristics

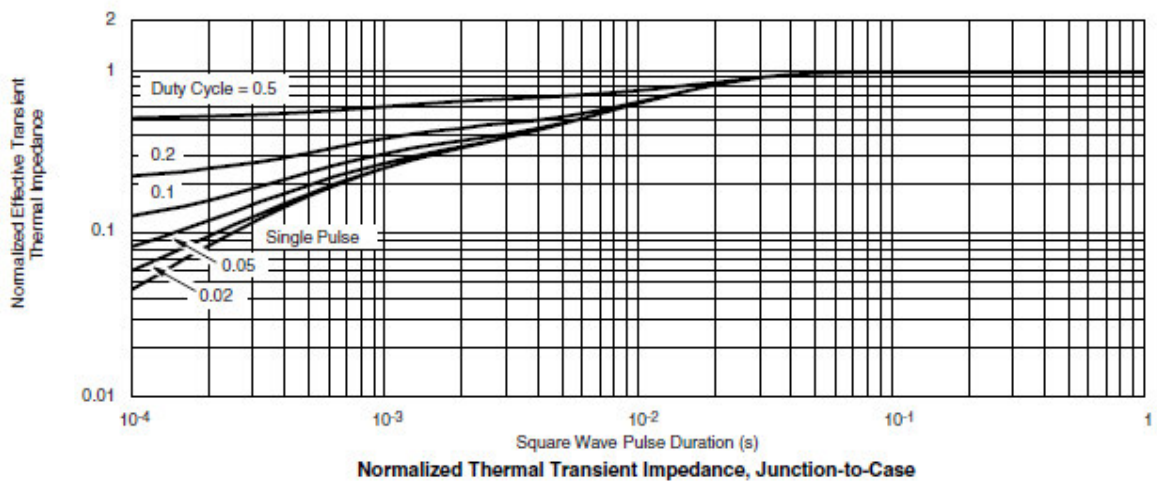
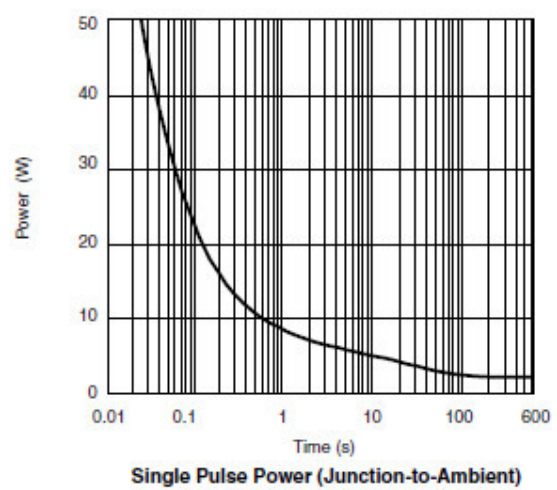
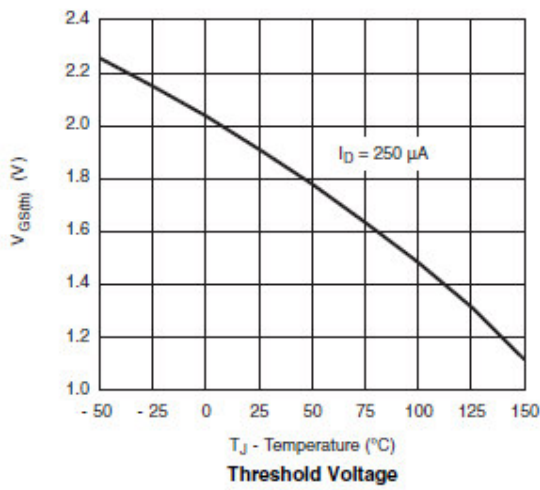
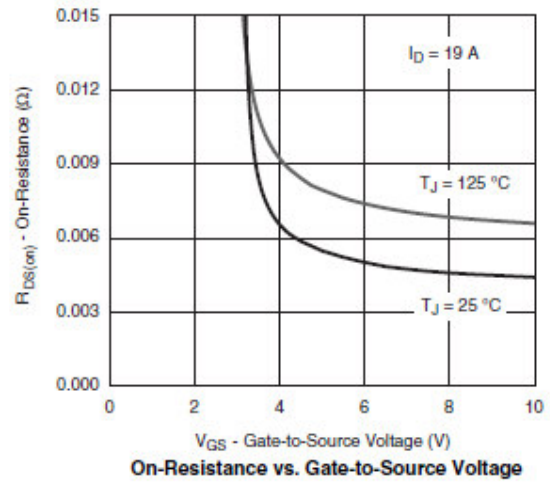
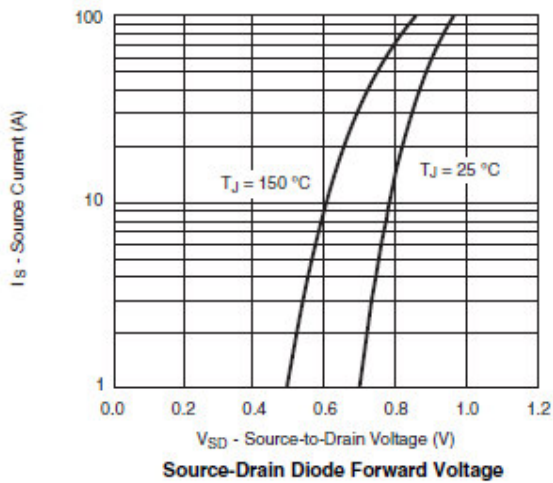
T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.0	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V			1	μA
		V _{DS} =24V, V _{GS} =0V, T _J =85°C			10	
I _{D(ON)}	On-State Drain Current	V _{DS} ≥5V, V _{GS} =10V	50			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =20A		3.6	5	mΩ
		V _{GS} =4.5V, I _D =15A		5.5	7	
g _{FS}	Forward Transconductance	V _{DS} =15V, I _D =20A		80		S
V _{SD}	Diode Forward Voltage	I _S =10A, V _{GS} =0V		0.8	1.3	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =20A		15	25	nC
Q _{gs}	Gate-Source Charge			6		
Q _{gd}	Gate-Drain Charge			5		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		1800		pF
C _{oss}	Output Capacitance			350		
C _{rss}	Reverse Transfer Capacitance			150		
t _{d(on)}	Turn-On Time	V _{DD} =15V, R _L =1.5Ω, I _D =10A, V _{GEN} =10V, R _G =1.0Ω		12	20	ns
t _r				10	20	
t _{d(off)}	Turn-Off Time			25	45	
t _f				10	20	

Typical Performance Characteristics

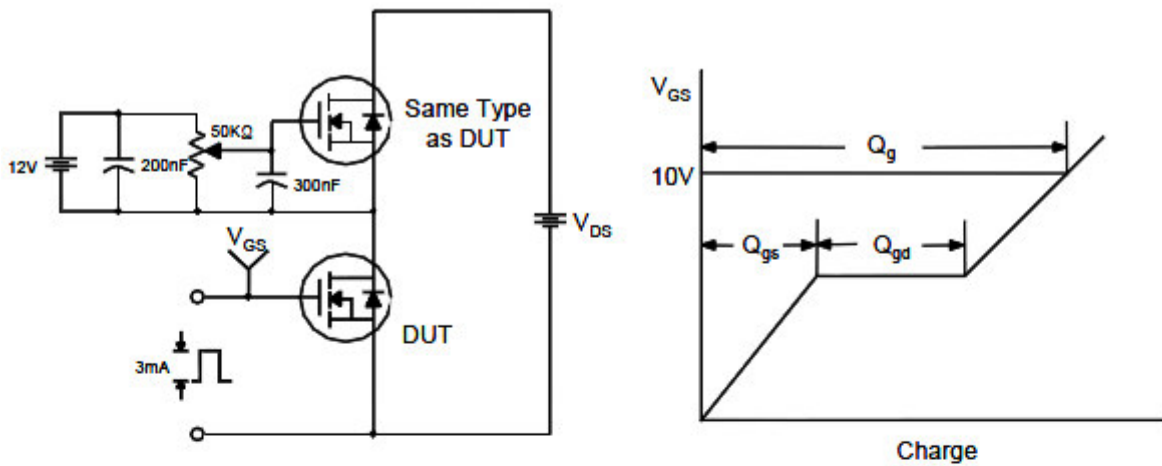


Typical Performance Characteristics (Continue)

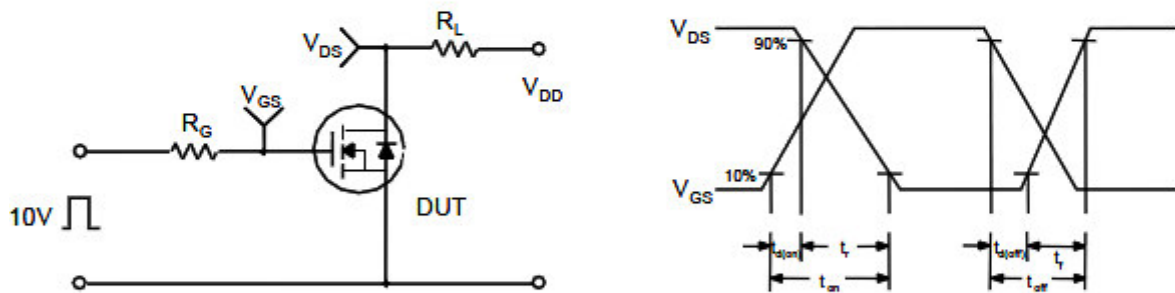


Typical Performance Characteristics (Continue)

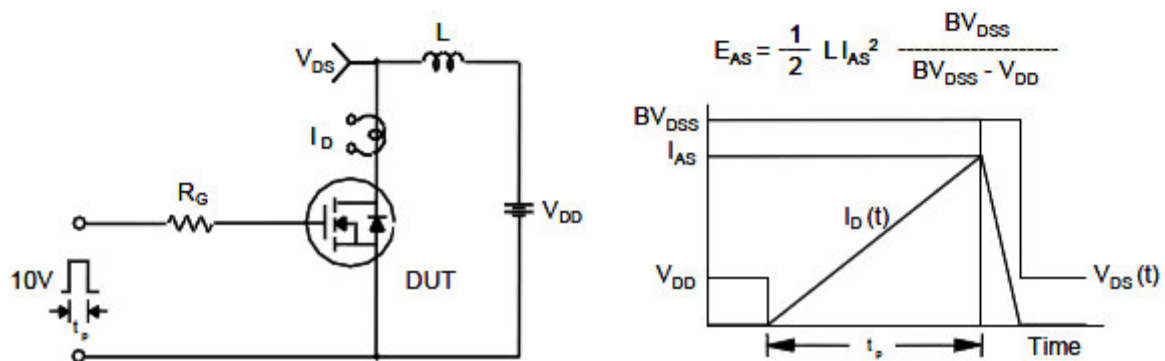
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

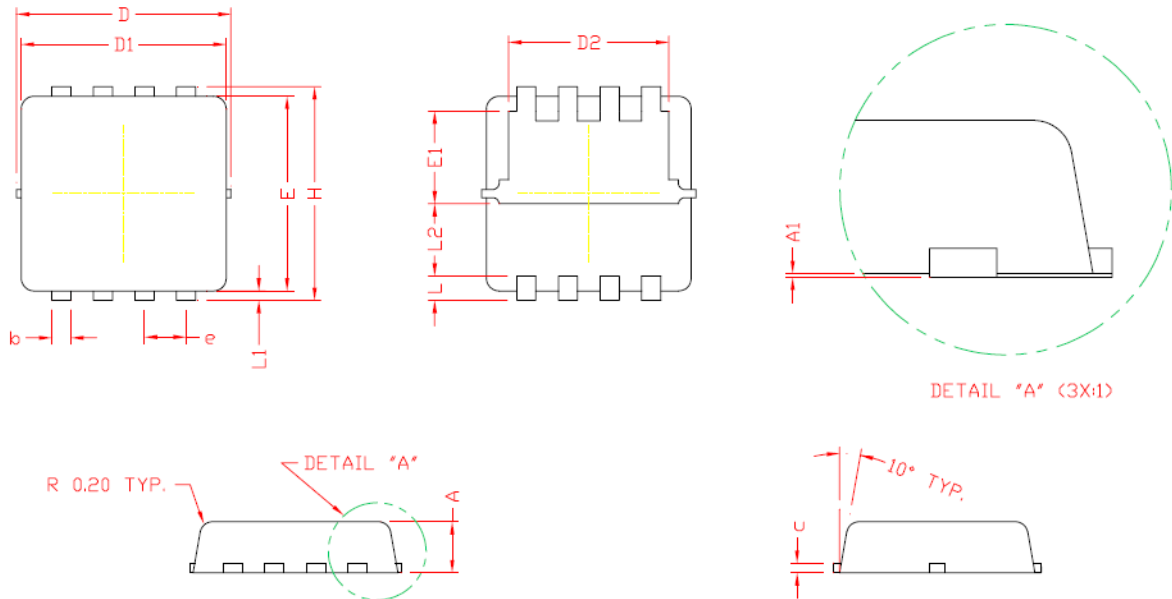


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

DFN3.3X3.3-8L







Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.027	0.035
A1	0.00	0.05	0.000	0.019
b	0.24	0.35	0.009	0.013
c	0.10	0.20	0.003	0.007
D	3.25	3.40	0.127	0.133
D1	3.05	3.25	0.120	0.127
D2	2.40	2.60	0.09	0.102
E	3.00	3.20	0.118	0.125
E1	1.35	1.55	0.053	0.061
e	0.65 (BSC)		0.025 (BSC)	
H	3.20	3.40	0.125	0.133
L	0.30	0.50	0.011	0.019
L1	0.10	0.20	0.003	0.007
L2	1.13 (REF)		0.044 (REF)	



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