

GSM5112TF

150V N-Channel MOSFET

Preliminary

Product Description

The N-Channel enhancement mode power field effect transistor is using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

The device is well suited for high efficiency fast switching applications.

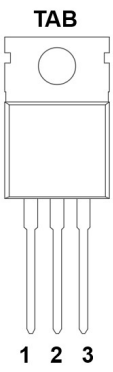
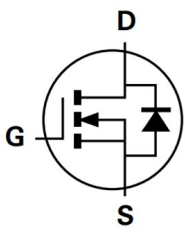
Features

- $R_{DS(ON)} = 12m\Omega @ V_{GS}=10V$
- TO-220-3L Package
- RoHS Compliant and Halogen Free

Applications

- MB / VGA / Vcore
- POL Applications
- SMPS

Packages & Pin Assignments

TO-220-3L			Equivalent Circuit		
					
Pin	Symbol	Description	Pin	Symbol	Description
1	G	Gate	2	D	Drain
3	S	Source	TAB	D	Drain

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Tube
GSM5112TF	TO-220-3L	5112TF □□□□□□	50 PCS
GSM5112 1 2			
- Product Code: GSM5112 - Package Code: 1 is T for TO-220-3L - Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
 - Product Code: 5112TF - GS Code: □□□□□□			

Absolute Maximum Ratings (T_A = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit
V _{DSS}	Drain-Source Voltage	100	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current (Silicon Limited)	T _C =25°C	A
		T _C =100°C	
I _{DM}	Pulsed Drain Current ¹	260	A
I _{AS}	Single Pulse Avalanche Current, L = 0.1mH ¹	24	A
E _{AS}	Single Pulse Avalanche Energy, L = 0.1mH ¹	216	mJ
P _D	Power Dissipation	T _C =25°C	W
		T _C =100°C	
R _{θJC}	Thermal Resistance-Junction to Case	0.64	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	60	°C/W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

NOTE:

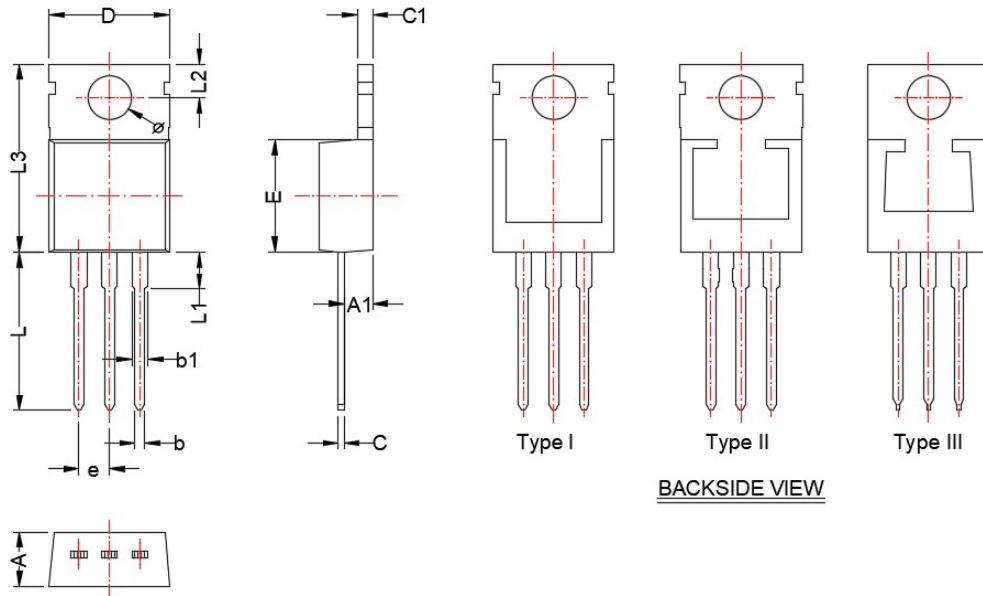
1. Single pulse width is limited by max junction temperature.

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	-	-	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =150V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2.5	-	4.5	V
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =20A	-	9	12	mΩ
		V _{GS} =6V, I _D =10A	-	11	16	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =20A	-	40	-	S
Dynamic Characteristics						
R _g	Gate Resistance	f=1MHz		1.5		Ω
C _{iSS}	Input Capacitance	V _{DS} =75V, V _{GS} =0V, f=1MHz	-	2450	-	pF
C _{oSS}	Output Capacitance		-	210	-	
C _{rSS}	Reverse Transfer Capacitance		-	15	-	
Q _g	Total Gate Charge	V _{DS} =75V, I _D =20A V _{GS} =10V	-	50	-	nC
Q _{gs}	Gate-Source Charge		-	8	-	
Q _{gd}	Gate-Drain Charge		-	18	-	
t _{d(on)}	Turn-On Delay Time	V _{DD} =75V, I _D =20A V _{GS} =10V, R _g =6Ω	-	15	-	ns
t _r	Turn-On Rise Time		-	28	-	
t _{d(off)}	Turn-Off Delay Time		-	45	-	
t _f	Turn-Off Fall Time		-	32	-	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A	-	-	1	V
t _{rr}	Reverse Recovery Time	I _F =10A , dI/dt=100A/μs	-	75	-	ns
Q _{rr}	Reverse Recovery Charge		-	230	-	nC

TO-220-3L

Package Dimension



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	3.56	4.82	0.140	0.190
A1	2.03	2.92	0.080	0.115
b	0.38	1.14	0.015	0.045
b1	1.00	1.78	0.039	0.070
c	0.30	1.14	0.012	0.045
c1	0.51	1.50	0.020	0.059
D	9.50	10.67	0.374	0.420
E	8.38	9.42	0.330	0.371
e	2.54 BSC		0.100 BSC	
L	12.00	14.73	0.472	0.250
L1	---	7.00	---	0.250
L2	2.54	3.43	0.100	0.135
L3	14.22	16.51	0.560	0.650
Ø	3.40	4.09	0.134	0.161

NOTE:

Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions.

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