

GSM1116NZF

100V 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.

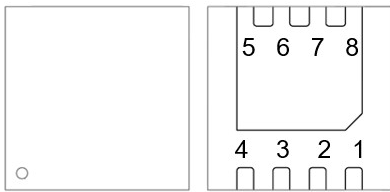
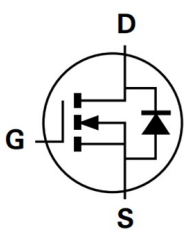
Features

- $R_{DS(ON)} = 16m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} = 24m\Omega @ V_{GS}=4.5V$
- DFN3333A-8L Package
- RoHS Compliant and Halogen Free

Applications

- MB / VGA / Vcore
- POL Applications
- SMPS

Packages & Pin Assignments

DFN3333A-8L			Equivalent Circuit		
 Top View Bottom View					
Pin	Symbol	Description	Pin	Symbol	Description
1	S	Source	8	D	Drain
2	S	Source	7	D	Drain
3	S	Source	6	D	Drain
4	G	Gate	5	D	Drain

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM1116NZF	DFN3333A-8L	1116NZ □□□□□□	3,000 PCS
GSM1116 1 2			
- Product Code: GSM1116 - Package Code: 1 is NZ for DFN3333A-8L - Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
 - Product Code: 1116NZ - 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	T _C =25°C	A
		T _C =100°C	
I _{DM}	Pulsed Drain Current ¹	80	A
I _{AS}	Single Pulse Avalanche Current, L = 0.1mH ¹	15	A
E _{AS}	Single Pulse Avalanche Energy, L = 0.1mH ¹	22	mJ
P _D	Power Dissipation	T _C =25°C	W
		T _C =100°C	
R _{θJC}	Thermal Resistance-Junction to Case	4	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient ²	62	°C/W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

NOTE:

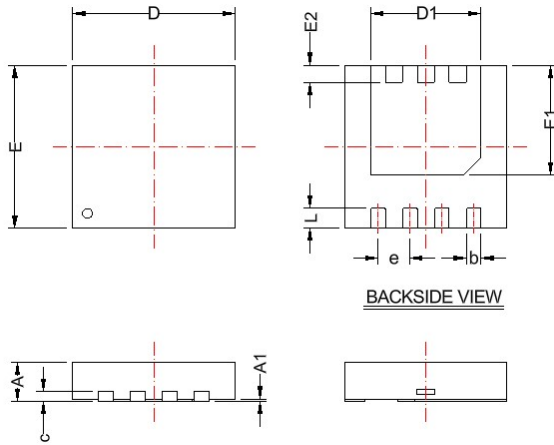
- Single pulse width is limited by max junction temperature.
- The device mounted on 1in² FR-4 board with 2oz. Copper

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

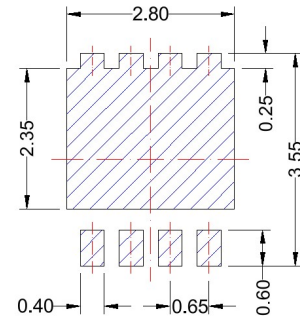
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	-	-	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.2	-	2.5	V
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =20A	-	-	16	mΩ
		V _{GS} =4.5V, I _D =10A	-	-	24	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =20A	-	28	-	S
Dynamic Characteristics						
R _g	Gate Resistance	f=1MHz		2		Ω
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	-	1221	1465	pF
C _{oss}	Output Capacitance		-	173	-	
C _{rss}	Reverse Transfer Capacitance		-	28	-	
Q _g	Total Gate Charge	V _{DS} =50V, I _D =20A V _{GS} =10V	-	25	38	nC
Q _{gs}	Gate-Source Charge		-	7.6	-	
Q _{gd}	Gate-Drain Charge		-	7.7	-	
t _{d(on)}	Turn-On Delay Time	V _{DD} =50V, I _D =20A V _{GS} =10V, R _g =6Ω	-	8.4	-	ns
t _r	Turn-On Rise Time		-	26	-	
t _{d(off)}	Turn-Off Delay Time		-	17	-	
t _f	Turn-Off Fall Time		-	18	-	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A	-	-	1	V
t _{rr}	Reverse Recovery Time	I _F =20A , dI/dt=100A/μs	-	41	-	ns
Q _{rr}	Reverse Recovery Charge		-	61	-	nC

DFN333A-8L

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.70	0.80	0.028	0.031
A1	0.00	0.05	0.000	0.002
b	0.24	0.35	0.009	0.014
c	0.15	0.25	0.006	0.010
D	3.20	3.40	0.126	0.134
D1	2.15	2.35	0.085	0.093
E	3.20	3.40	0.126	0.134
E1	2.13	2.33	0.084	0.092
E2	0.25	0.45	0.010	0.018
e	0.65 BSC		0.026 BSC	
L	0.30	0.50	0.012	0.020

NOTE:

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

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