GSM1362TF

100V N-Channel MOSFET

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.

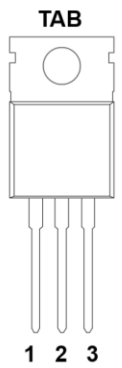
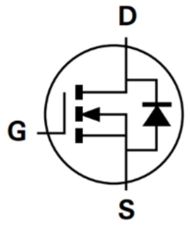
Features

- $R_{DS(ON)}$ = 6.4mΩ @ V_{GS}=10V
- $R_{DS(ON)}$ = 9.6mΩ @ V_{GS}=4.5V
- 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**
GSM1362TF	TO-220-3L	1362TF □□□□□□	50 PCS

GSM1362 **1** **2**

- **Product Code:**
  GSM1362
- **Package Code:**
  1 is **T** for TO-220-3L
- **Green Level:**
  2 is **F** for RoHS Compliant and Halogen Free

Marking Information

- **Product Code:**
  1362TF
- **GS Code:**
  □□□□□□

Absolute Maximum Ratings (T$_A$ = 25ºC 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=25ºC	110	A
		T_C=100ºC	68	
	Continuous Drain Current (Package Limited)		100	
I_{DM}	Pulsed Drain Current [1]		245	A
I_{AS}	Single Pulse Avalanche Current, L = 0.1mH [1]		25	A
E_{AS}	Single Pulse Avalanche Energy, L = 0.1mH [1]		62.5	mJ
P_D	Power Dissipation	T_C=25ºC	156	W
		T_C=100ºC	62.5	
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.8	ºC/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [2]		62	ºC/W
T_J	Operating Junction Temperature Range		-55 to +150	ºC
T_{STG}	Storage Temperature Range		-55 to +150	ºC

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

Electrical Characteristics (T_J = 25ºC 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=40A	-	5.6	6.4	mΩ
		V_{GS}=4.5V, I_D=20A	-	8	9.6	
gfs	Forward Transconductance	V_{DS}=5V, I_D=30A	-	42	-	S
Dynamic Characteristics						
Rg	Gate Resistance	f=1MHz		0.8		Ω
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V, f=1MHz	-	2340	-	pF
C_{oss}	Output Capacitance		-	455	-	
C_{rss}	Reverse Transfer Capacitance		-	22	-	
Q_g	Total Gate Charge	V_{DS}=50V, I_D=40A V_{GS}=10V	-	54	-	nC
Q_{gs}	Gate-Source Charge		-	8	-	
Q_{gd}	Gate-Drain Charge		-	20	-	
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=50V, I_D=40A V_{GS}=10V, Rg=3Ω	-	20	-	ns
t_r	Turn-On Rise Time		-	10	-	
$t_{d(off)}$	Turn-Off Delay Time		-	31	-	
t_f	Turn-Off Fall Time		-	7	-	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A	-	-	1	V
t_{rr}	Reverse Recovery Time	V_R=50V, I_F=40A , dI/dt=100A/μs	-	58	-	ns
Q_{rr}	Reverse Recovery Charge		-	115	-	nC

Typical Performance Characteristics

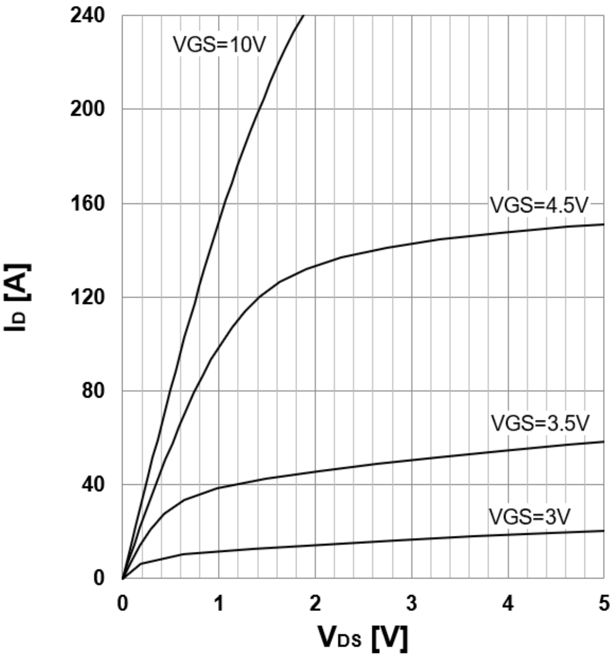


FIG.1 Output Characteristics

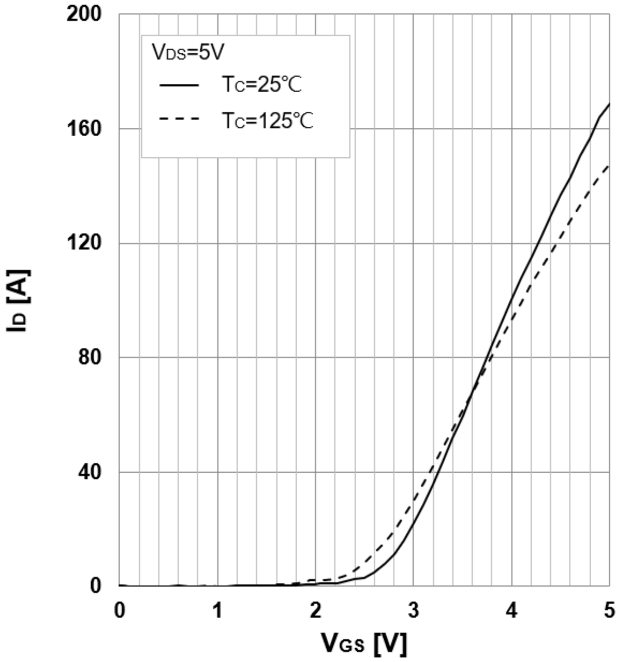


FIG.2 Transfer Characteristics

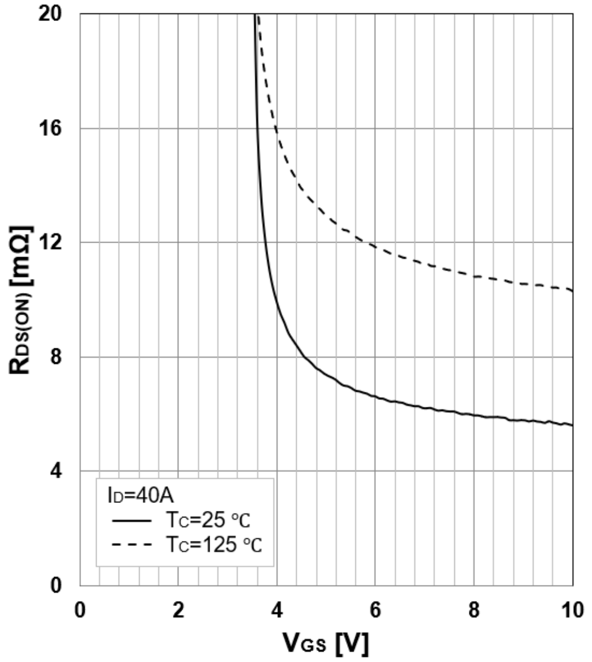


FIG.3 On-Resistance vs. Gate Voltage

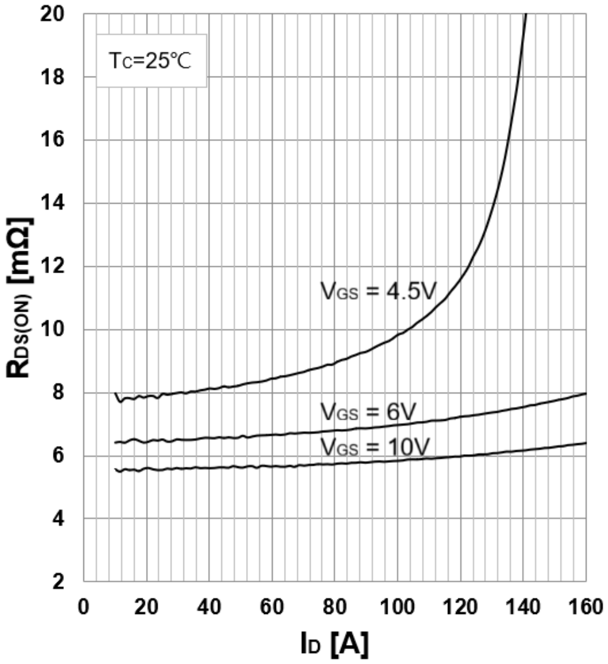


FIG.4 On-Resistance vs. Drain Current

Typical Performance Characteristics

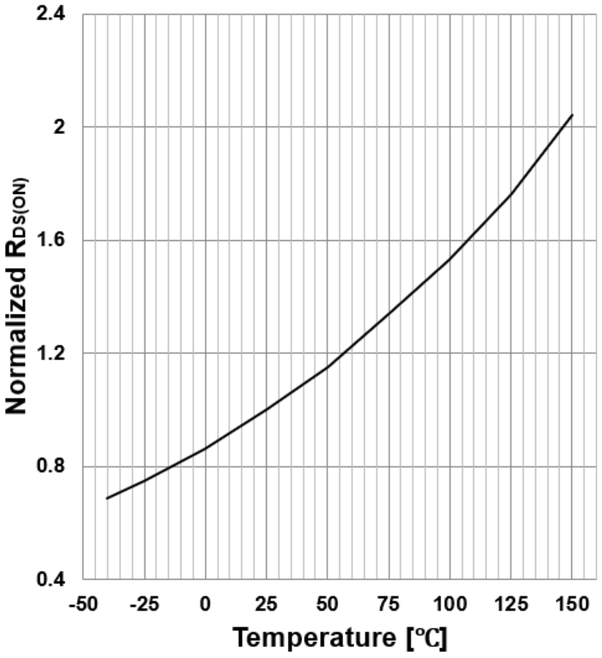


FIG.5 Normalized On-Resistance vs. T_J

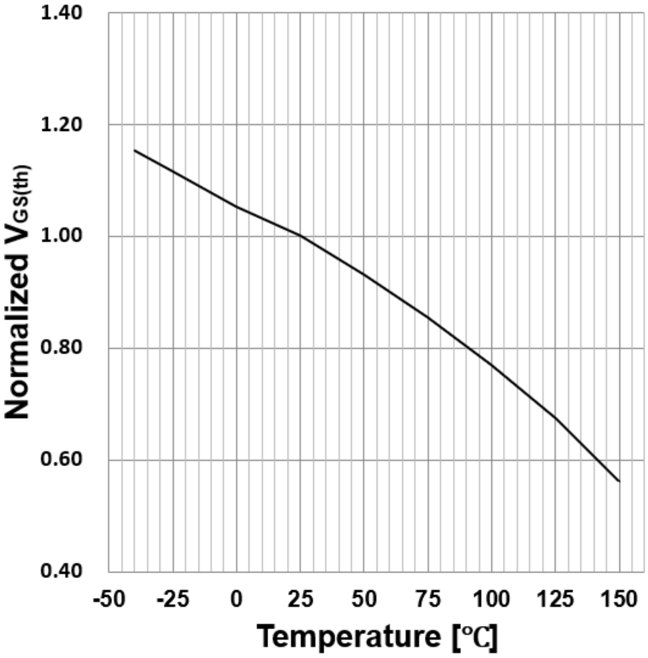


FIG.6 Normalized V_{GS}(th) vs. T_J

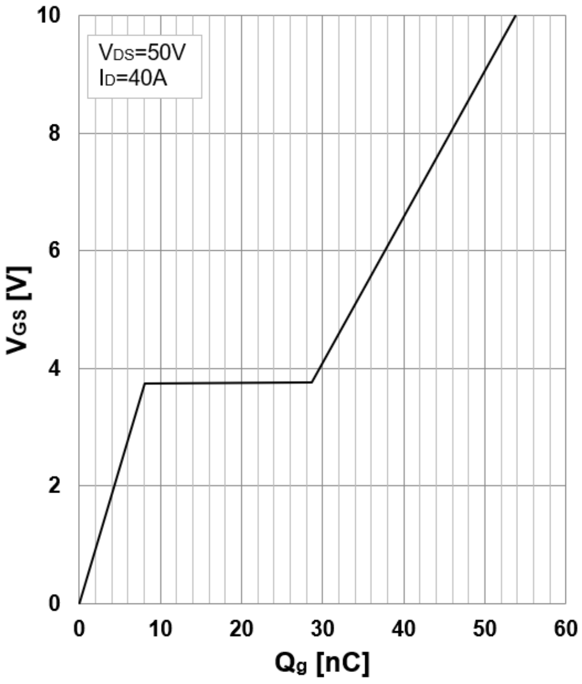


FIG.7 Gate Charge Characteristics

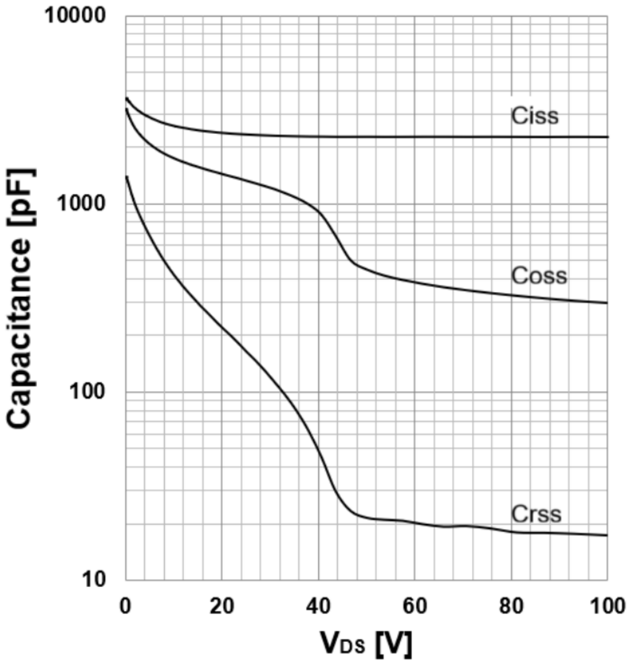


FIG.8 Capacitance Characteristics

Typical Performance Characteristics

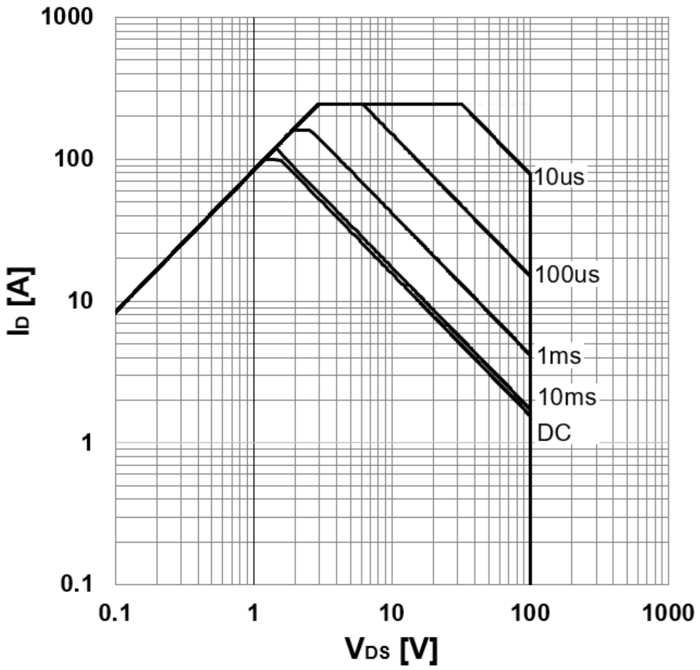


FIG.9 Maximum Safe Operation Area

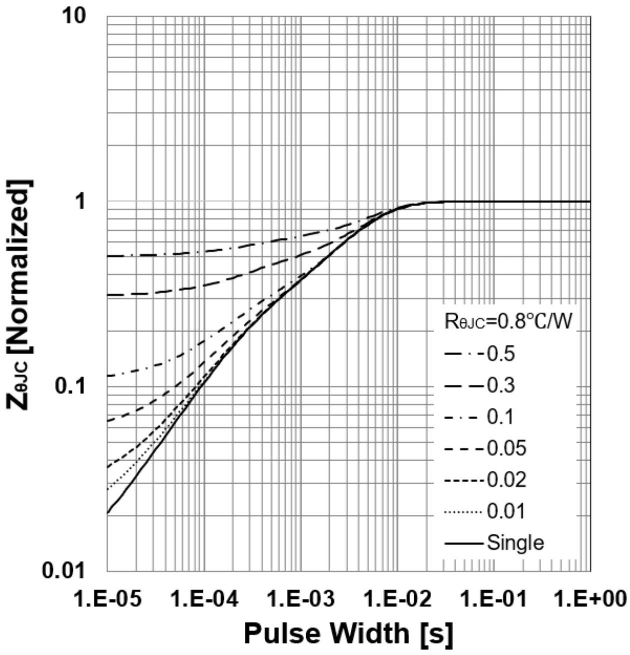


FIG.10 Normalized Transient Impedance

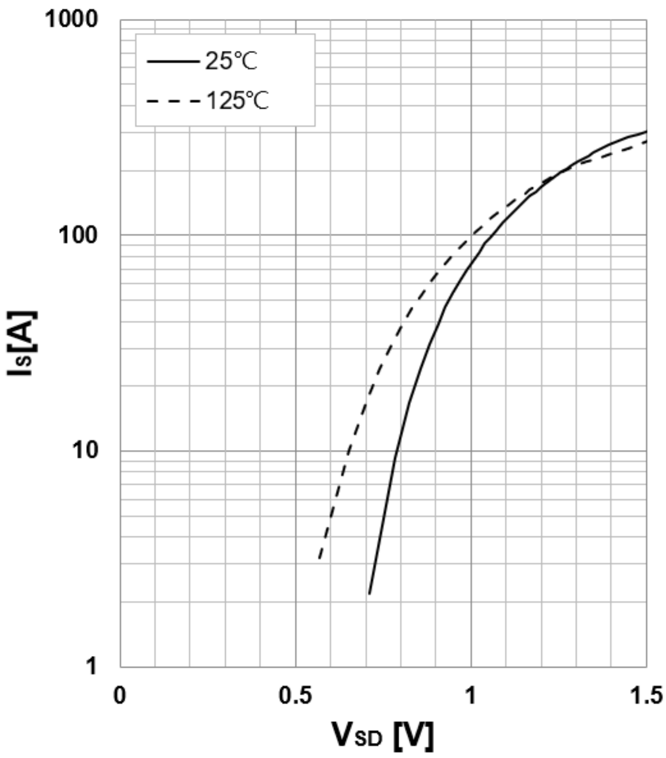
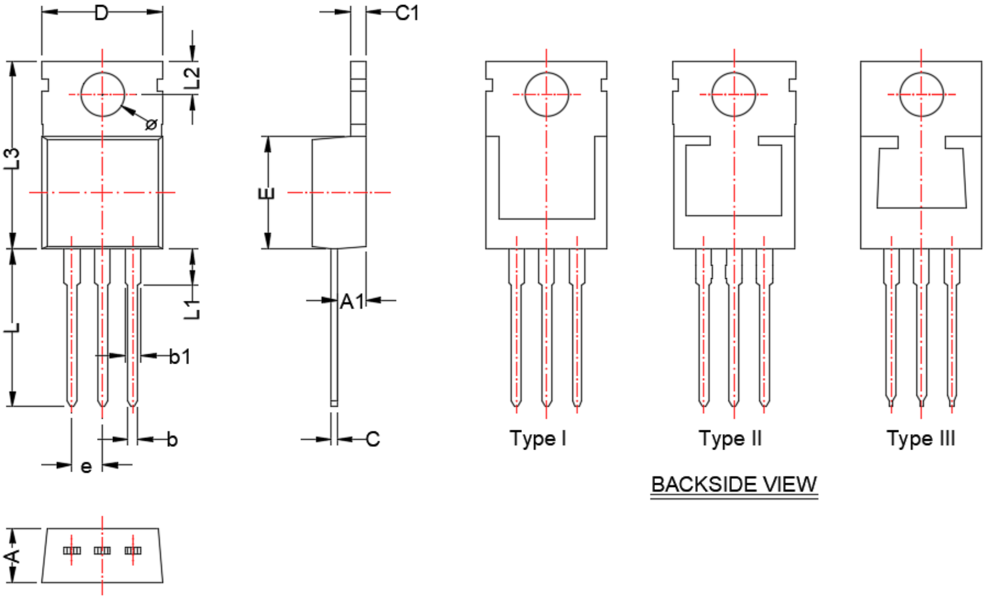


FIG.11 Body-Diode Characteristics

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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