GSMDD0903DF

100V P-Channel MOSFETs

Product Description

These P-Channel enhancement mode power field effect transistors are 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.

These devices are well suited for high efficiency fast switching applications.

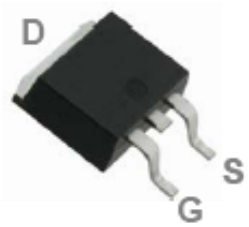
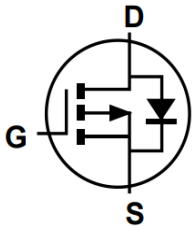
Features

- -100V, -10A, $R_{DS(ON)}$=140mΩ@V_{GS}=-10V
- V_{GS} Guaranteed ±25V
- Improved dv/dt capability
- Fast switching
- Green Device Available
- TO-252-2L package design

Applications

- Networking
- Load Switch
- LED applications

Packages & Pin Assignments

TO-252-2L	Equivalent Circuit
 Top View	

Pin	Description
1	Gate
2	Source
3	Drain

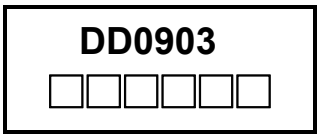
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSMDD0903DF	TO-252-2L	DD0903 □□□□□□	2,500 PCS

GSMDD0903 1 2

- **Product Code:** GSMDD0903
- **Package Code:** 1 is **D** for TO-252-2L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** DD0903
- **GS Code:** □□□□□□

Absolute Maximum Ratings (T_C=25ºC Unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		-100	V
V_{GS}	Gate –Source Voltage		±25	V
I_D	Continuous Drain Current	T_C=25℃	-10	A
		T_C=100℃	-6.5	
I_{DM}	Pulsed Drain Current		-40	A
P_D	Power Dissipation (T_C=25℃)		73.5	W
	Power Dissipation (Derate above 25℃)		0.59	W/℃
T_J	Operating Junction Temperature Range		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		1.7	℃/W

Electrical Characteristics (T_J=25℃ Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	-100			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-1		-3	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±25V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-100V,V_{GS}=0V			-1	uA
		V_{DS}=-80V,V_{GS}=0V, T_J=125℃			-10	
I_S	Continuous Source Current	V_G=V_D=0V, Force Current			-10	A
I_{SM}	Pulsed Source Current				-20	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS} =-10V,I_D=-6A		115	140	mΩ
		V_{GS} =-4.5V,I_D=-3A		130	170	mΩ
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=-1A			-1.2	V
Dynamic						
Q_g	Total Gate Charge	V_{DS}=-50V,V_{GS}=-10V, I_D=-6A		40.4	70	nC
Q_{gs}	Gate-Source Charge			7.7	15	
Q_{gd}	Gate-Drain Charge			6.6	13	
C_{iss}	Input Capacitance	V_{DS}=-30V,V_{GS}=0V, f=1MHz		2250	3900	pF
C_{oss}	Output Capacitance			130	250	
C_{rss}	Reverse Transfer Capacitance			90	180	
$t_{d(on)}$	Turn-On Time	V_{DD}=-30V,I_D=-1A, V_{GS}=-10V,R_G=6Ω		27	54	ns
t_r				12	24	
$t_{d(off)}$	Turn-Off Time			150	300	
t_f				45	90	
R_g	Gate Resistance	V_{DS}=0V,V_{GS}=0V, f=1MHz		10		Ω

Typical Performance Characteristics

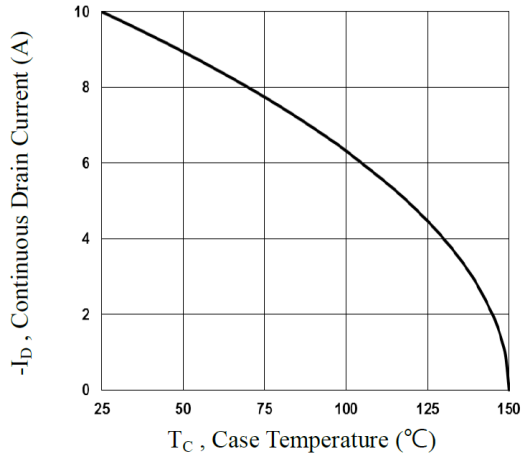


Fig.1 Continuous Drain Current vs. T_C

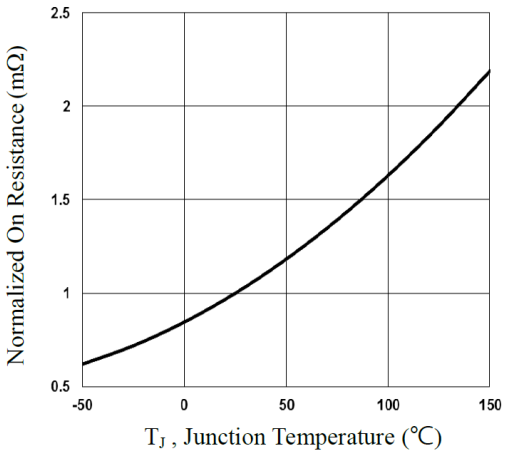


Fig.2 Normalized R_{DSON} vs. T_J

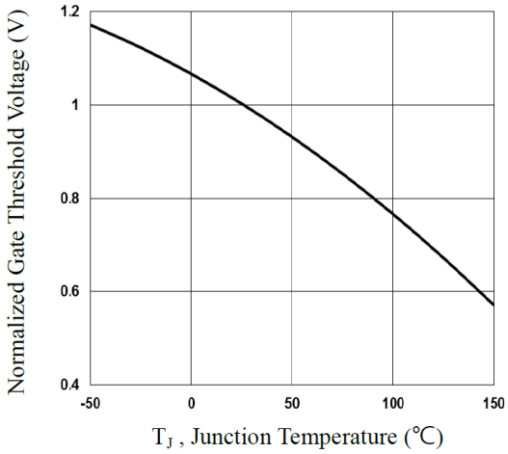


Fig.3 Normalized Vth vs. T_J

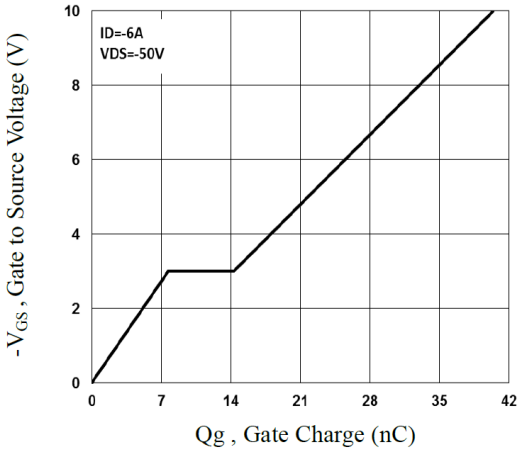


Fig.4 Gate Charge Waveform

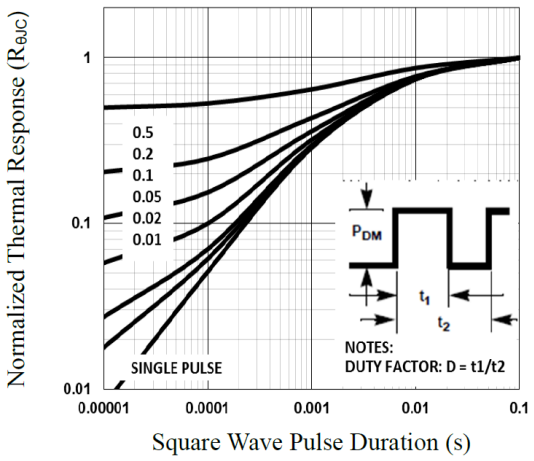


Fig.5 Normalized Transient Impedance

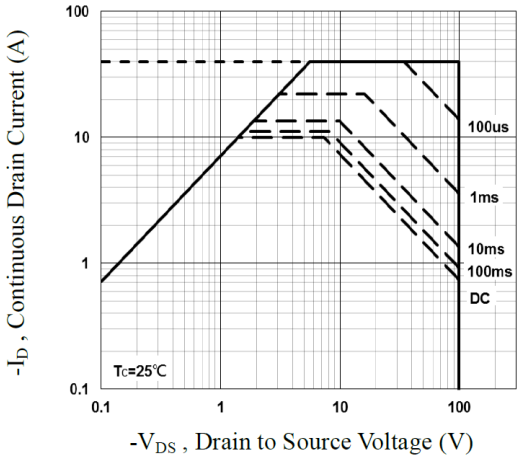
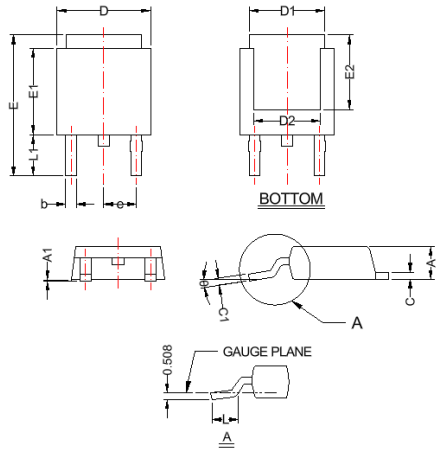
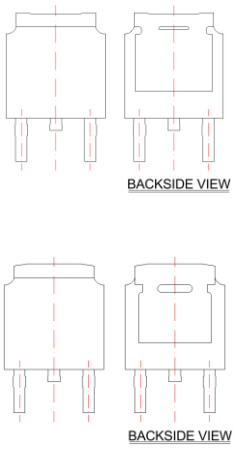


Fig.6 Maximum Safe Operation Area

TO-252-2L

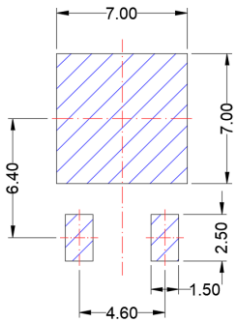
Package Dimension





(Appearance)

Recommended Land Pattern



Unit:mm

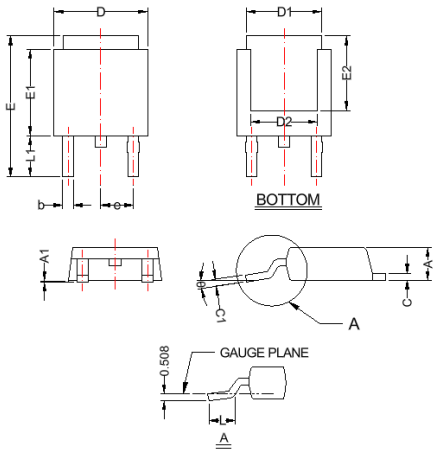
Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.18	2.40	0.086	0.094
A1	0.00	0.15	0.000	0.006
b	0.64	0.90	0.025	0.035
c	0.40	0.89	0.016	0.035
c1	0.40	0.61	0.016	0.024
D	6.35	6.73	0.250	0.265
D1	4.95	5.46	0.195	0.215
D2	4.32	---	0.170	---
E	9.40	10.41	0.370	0.410
E1	5.97	6.22	0.235	0.245
E2	4.95	---	0.195	---
e	2.286 BSC		0.090 BSC	
L	1.40	1.77	0.055	0.070
L1	2.67	3.07	0.105	0.121
θ	0°	8°	0°	8°

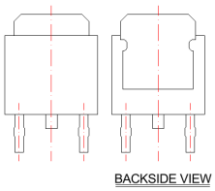
NOTE:

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

TO-252-2L

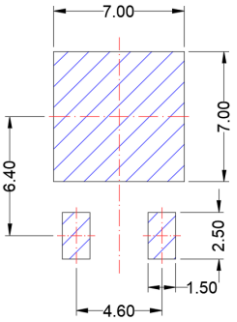
Package Dimension





(Appearance)

Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.18	2.40	0.086	0.094
A1	0.00	0.15	0.000	0.006
b	0.50	0.90	0.020	0.035
c	0.45	0.89	0.018	0.035
c1	0.40	0.61	0.016	0.024
D	6.35	6.80	0.250	0.268
D1	4.95	5.50	0.195	0.217
D2	3.81	---	0.150	---
E	9.40	10.41	0.370	0.410
E1	5.33	5.80	0.210	0.228
E2	4.57	---	0.180	---
e	2.286 BSC		0.090 BSC	
L	1.40	1.78	0.055	0.070
L1	2.40	3.00	0.094	0.118
θ	0°	8°	0°	8°

NOTE:

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

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