GSM3335XF

30V 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.

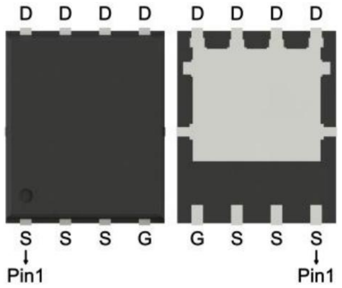
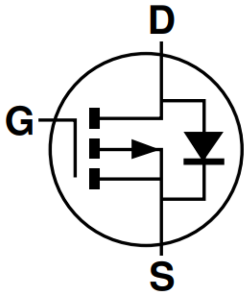
Features

- -30V, -90A, $R_{DS(ON)}$<3.5mΩ@V_{GS}=-10V
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- DFN5X6-8L package design

Applications

- Motor Driver Applications
- POL Applications
- Load Switch
- LED Application

Packages & Pin Assignments

DFN5X6-8L	Equivalent Circuit
	

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**
GSM3335XF	DFN5x6-8L	3335XF □□□□□□	3,000 PCS

GSM3335 1 2

- **Product Code:** GSM3335
- **Package Code:** 1 is **X** for DFN5x6-8L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information

3335XF
□□□□□□

- **Product Code:** 3335XF
- **GS Code:** □□□□□□

Absolute Maximum Ratings (T$_C$=25ºC Unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		-30	V
V_{GS}	Gate-Source Voltage		±25	V
I_D	Continuous Drain Current	T_C=25℃	-90	A
		T_C=100℃	-56	
I_{DM}	Pulsed Drain Current[1]		-360	A
P_D	Power Dissipation	T_C=25℃	136	W
T_J	Operating Junction Temperature Range		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.92	℃/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	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.2	-1.6	-2.5	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±25V			±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-30V, V_{GS}=0V			-1	uA
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_S=-1A			-1	V
$R_{DS(on)}$	Drain-Source On-Resistance[3]	V_{GS}=-10V, I_D=-30A		3.4	4	mΩ
		V_{GS}=-4.5V, I_D=-10A		5.6	6.8	
Gate charge characteristics						
Q_g	Total Gate Charge[3,4]	V_{DD}=-15V, V_{GS}=10V, I_D=-50A		150		nC
Q_{gs}	Gate-Source Charge[3,4]			24		
Q_{gd}	Gate-Drain Charge[3,4]			28		
Dynamic characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V,V_{GS}=0V, f=1.0MHz		7500		pF
C_{oss}	Output Capacitance			1200		
C_{rss}	Reverse Transfer Capacitance			940		
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, V_{GS}=-10V, Rg=6Ω, I_D=-1A		25		ns
t_r	Rise Time			35		
$t_{d(off)}$	Turn-Off Time			100		
t_f	Fall Time			50		

Typical Performance Characteristics

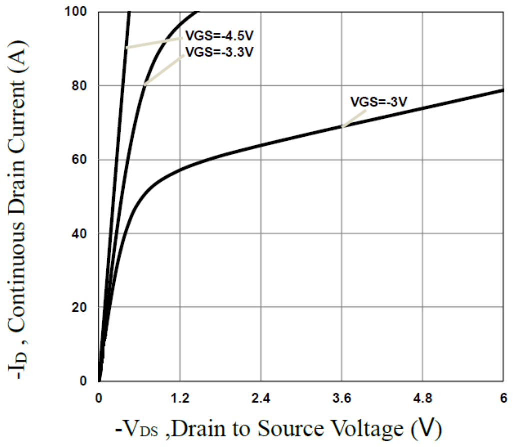


Figure 1. Output Characteristics

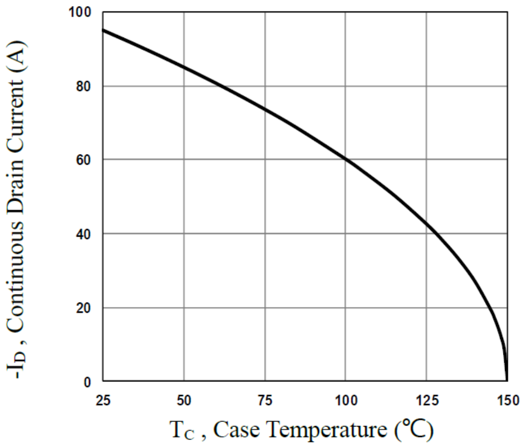


Figure 2. On-Resistance Variation with V_{GS}

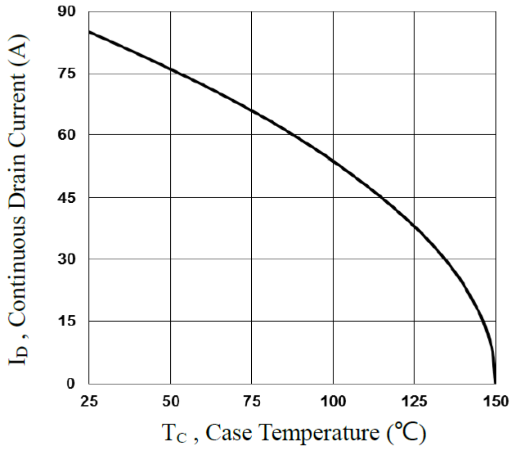


Figure 3. Normalized $V_{GS(th)}$ vs. T_J

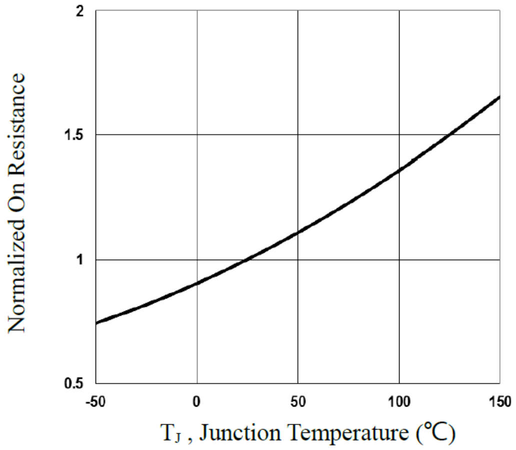


Figure 4. Normalized R_{DSON} vs. T_J

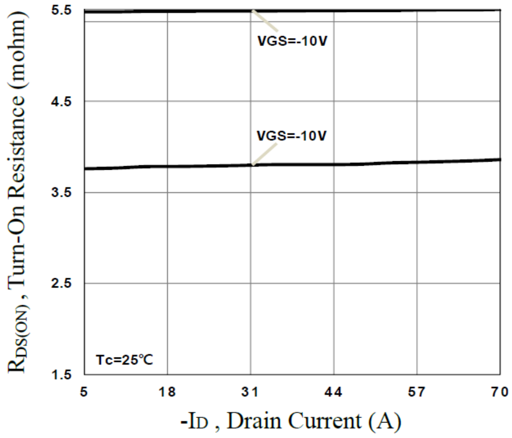


Figure 5. Turn-On Resistance vs. I_D

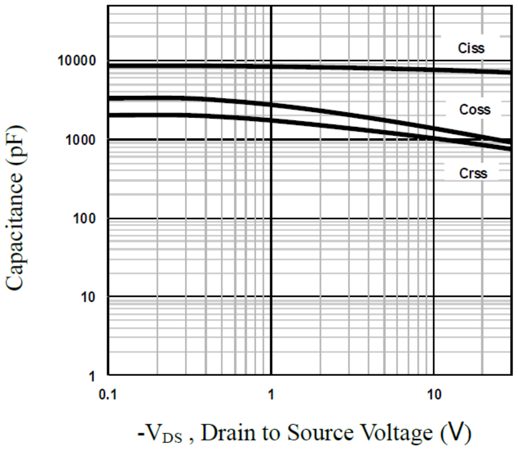


Figure 6. Capacitance

Typical Performance Characteristics (Continue)

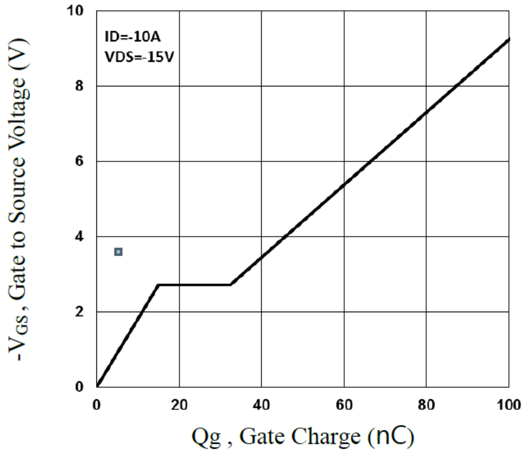


Figure 7. Gate Charge Waveform

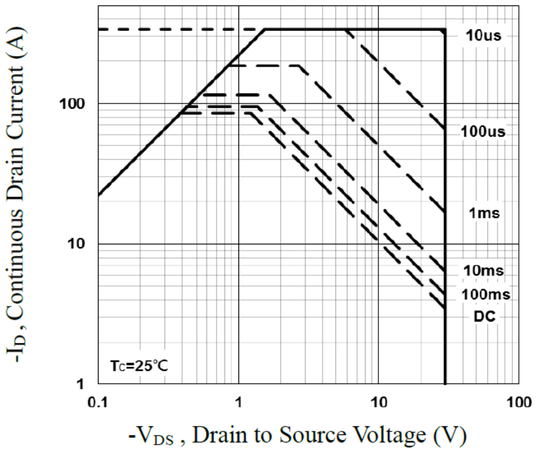


Figure 8. Maximum Safe Operating Area

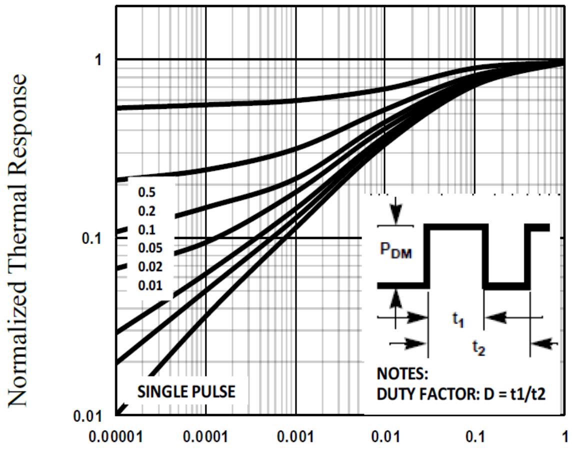
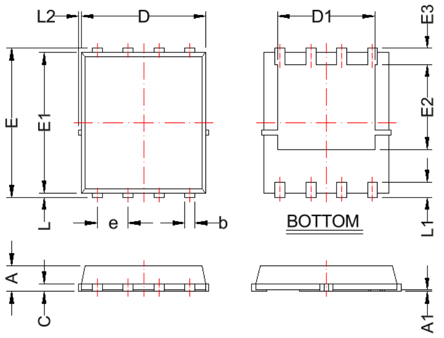
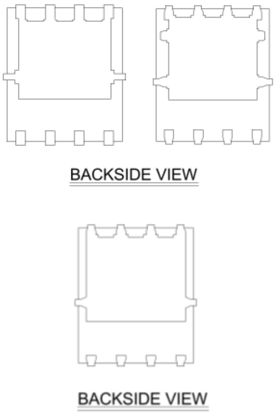


Figure 9. Normalized Transient Thermal Resistance

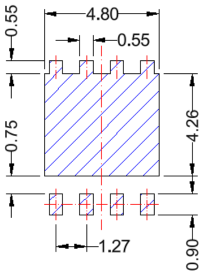
DFN5x6-8L

Package Dimension





Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	**Millimeters**		**Inches**	
	MIN	**MAX**	**MIN**	**MAX**
A	0.80	1.20	0.031	0.047
A1	0.00	0.05	0.000	0.002
b	0.25	0.51	0.010	0.020
c	0.20	0.35	0.008	0.014
D	4.80	5.40	0.189	0.213
D1	3.40	4.60	0.134	0.181
E	5.90	6.20	0.232	0.244
E1	5.40	5.90	0.213	0.232
E2	3.20	3.80	0.126	0.150
E3	0.40	0.80	0.016	0.031
e	1.27 BSC		0.050 BSC	
L	0.06	0.25	0.002	0.010
L1	0.34	0.75	0.013	0.030
L2	---	0.15	---	0.006

NOTE:

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

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CONTACT US

GS Headquarter	
🏢	4F, NO.43-1, Lane 11, Sec. 6, Minquan E. Rd Neihu District, Taipei City 114761, Taiwan (R.O.C).
☎	886-2-2657-9980
📠	886-2-2657-3630
✉@	sales_twn@gs-power.com

RD Division	
🏢	824 Bolton Drive Milpitas. CA. 95035
☎	1-408-457-0587