

GSM2219K

20V Dual P-Channel MOSFETs

Product Description

These Dual 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.

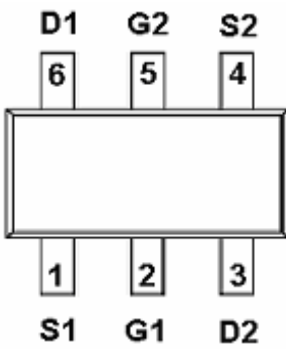
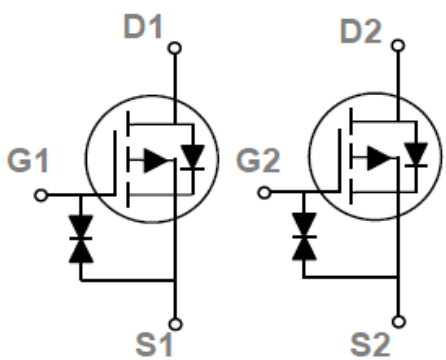
Features

- -20V, -540mA, $R_{DS(ON)}=600m\Omega@V_{GS}=-4.5V$
- Fast switching
- Suit for 1.5V Gate Drive Applications
- Green Device Available

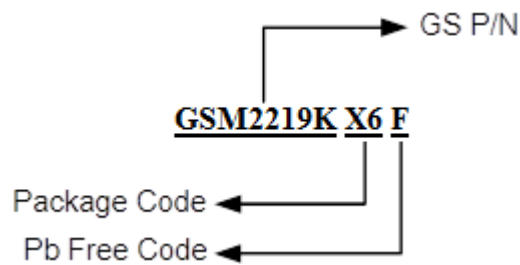
Applications

- Notebook
- Load Switch
- Networking
- Hand-Held Instruments

Packages & Pin Assignments

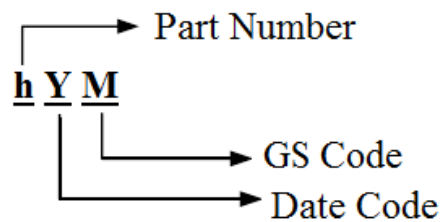
GSM2219KX6F (SOT-363)			
 <p style="text-align: center;">Top Views</p>			
			
Pin	Description	Pin	Description
1	Source 1	4	Source 2
2	Gate 1	5	Gate 2
3	Drain 2	6	Drain 1

Ordering Information



Part Number	Package	Part Marking	Quantity
GSM2219KX6F	SOT-363	hYM	3000pcs

Marking Information



Absolute Maximum Ratings

$T_C=25^{\circ}\text{C}$ Unless otherwise noted

Symbol	Parameter	Typical	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 8	V
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$	-540
		$T_C=100^{\circ}\text{C}$	-430
I_{DM}	Pulsed Drain Current ¹	-2.16	A
P_D	Power Dissipation ($T_C=25^{\circ}\text{C}$)	278	mW
	Power Dissipation (Derate above 25°C)	2.2	mW/ $^{\circ}\text{C}$
T_J	Operating Junction Temperature Range	-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	450	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

T_J=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-20			V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C, I _D =-1mA		-0.01		V/°C
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-0.3	-0.6	-1.0	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient			3		mV/°C
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±8V			±20	uA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-20V, V _{GS} =0V T _J =25°C			-1	uA
		V _{DS} =-16V, V _{GS} =0V, T _J =125°C			-10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			-0.54	A
I _{SM}	Pulsed Source Current				-1.08	
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-0.3A		440	600	mΩ
		V _{GS} =-2.5V, I _D =-0.2A		610	850	
		V _{GS} =-1.8V, I _D =-0.1A		810	1200	
		V _{GS} =-1.5V, I _D =-0.1A		1020	1600	
		V _{GS} =-1.2V, I _D =-0.1A		1800	3000	
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-0.2A			-1	V
Dynamic						
Q _g	Total Gate Charge ^{2,3}	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-0.2A		1	2	nC
Q _{gs}	Gate-Source Charge ^{2,3}			0.28	0.5	
Q _{gd}	Gate-Drain Charge ^{2,3}			0.18	0.4	
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, F=1MHz		40	78	pF
C _{oss}	Output Capacitance			15	30	
C _{rss}	Reverse Transfer Capacitance			6.5	13	
t _{d(on)}	Turn-On Delay Time ^{2,3}	V _{DD} =-10V, I _D =-0.2A, V _{GS} =-4.5V, R _G =10Ω		8	16	ns
t _r	Rise Time ^{2,3}			5.2	10	
t _{d(off)}	Turn-Off Delay Time ^{2,3}			30	60	
t _f	Fall Time ^{2,3}			18	36	

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

Typical Performance Characteristics

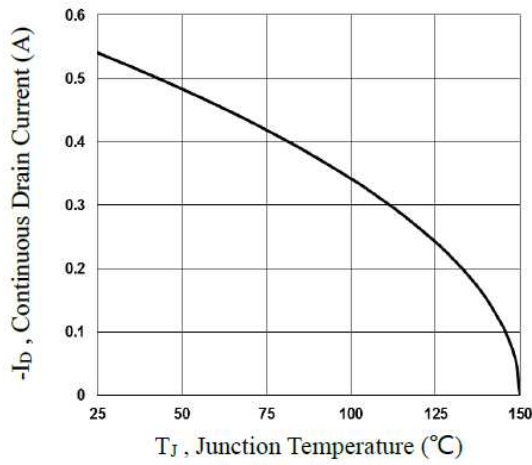


Fig.7 Continuous Drain Current vs. T_c

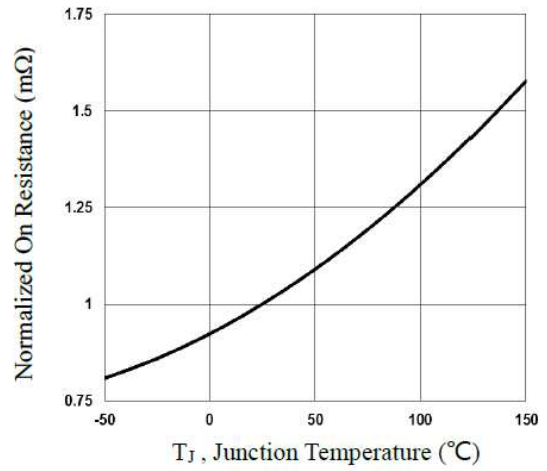


Fig.8 Normalized $R_{DS(on)}$ vs. T_J

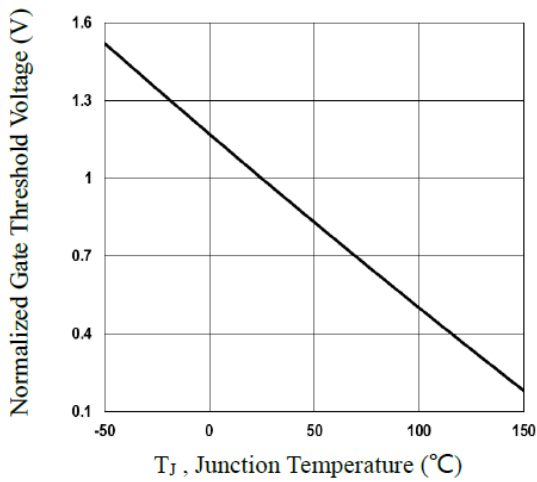


Fig.9 Normalized V_{th} vs. T_J

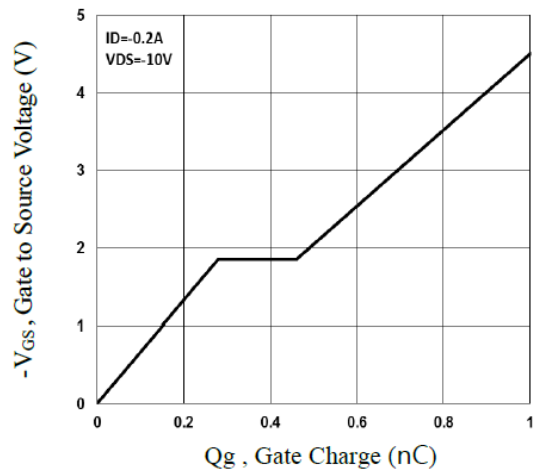


Fig.10 Gate Charge Waveform

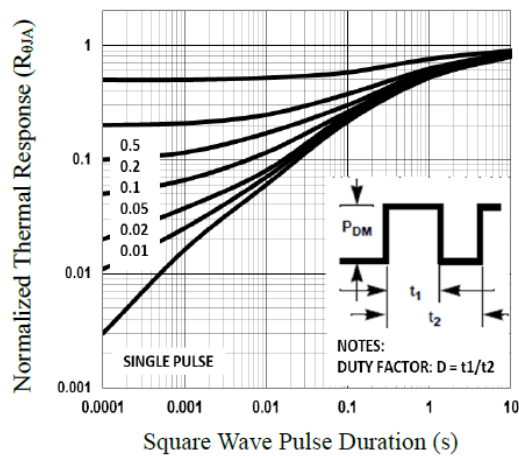


Fig.11 Normalized Transient Impedance

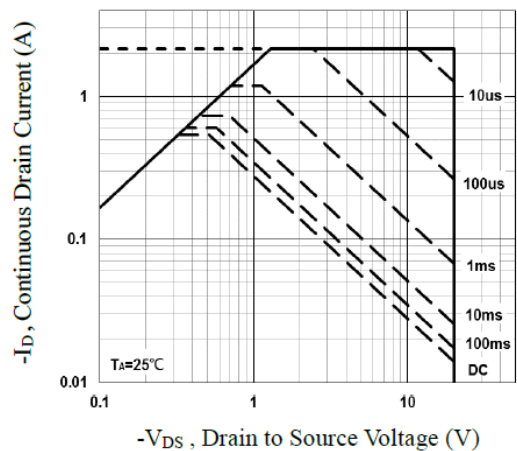
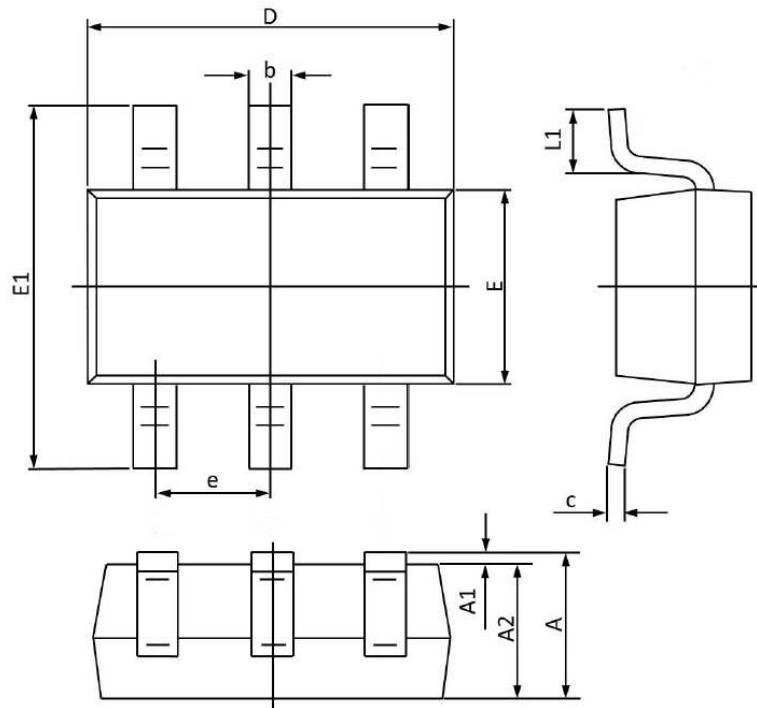


Fig.12 Maximum Safe Operation Area

Package Dimension

SOT-363







Dimensions



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.330	0.100	0.013	0.004
c	0.250	0.100	0.010	0.004
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.400	1.800	0.094	0.071
e	0.65BSC		0.026BSC	
L1	0.350	0.100	0.014	0.004

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