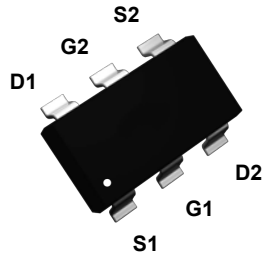
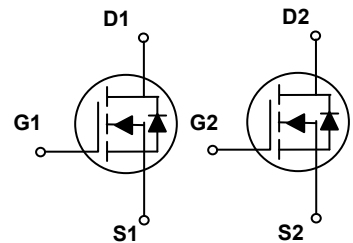


Main Product Characteristics

V_{DS}	60V
$R_{DS(ON)}$	2.0 Ω (Max.)
I_D	0.34A



SOT-363



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFK6802M utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.34	A
Drain Current-Continuous (70°C)		0.28	
Pulsed Drain Current ¹	I_{DM}	1.36	A
Maximum Power Dissipation	P_D	440	mW
Thermal Resistance, Junction to Ambient ²	$R_{\theta JA}$	310	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To +150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±5V, V _{DS} =0V	-	-	100	nA
		V _{GS} =±10V, V _{DS} =0V	-	-	100	nA
		V _{GS} =±20V, V _{DS} =0V	-	-	100	nA
Gate-Source Breakdown Voltage	BV _{GSO}	V _{DS} =0V, I _G =±250uA	±20	-	-	V
Gate Threshold Voltage ³	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.7	1.1	1.5	V
Drain-Source On-State Resistance ³	R _{DS(ON)}	V _{GS} =10V, I _D =0.3A	-	0.85	2	Ω
		V _{GS} =4.5V, I _D =0.2A	-	1.0	3.6	
Forward Transconductance ³	g _{fs}	V _{DS} =10V, I _D =0.2A	0.09	-	-	S
Dynamic and Switching Characteristics						
Input Capacitance ⁴	C _{iss}	V _{DS} =25V, V _{GS} =0V, F=1.0MHz	-	30	-	pF
Output Capacitance ⁴	C _{oss}		-	6.1	-	
Reverse Transfer Capacitance ⁴	C _{rss}		-	3.1	-	
Turn-On Delay Time ⁴	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, R _{GEN} =6Ω, I _D =0.3A	-	4.0	-	nS
Rise Time ⁴	t _r		-	2.7	-	
Turn-Off Delay Time ⁴	t _{d(off)}		-	9.4	-	
Fall Time ⁴	t _f		-	33	-	
Total Gate Charge ⁴	Q _g	V _{DS} =10V, I _D =0.3A, V _{GS} =10V	-	1.6	-	nC
Gate to Source Charge ⁴	Q _{gs}		-	0.3	-	
Gate to Drain Charge ⁴	Q _{gd}		-	0.45	-	
Drain-Source Ratings and Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} =0V, I _S =0.2A	-	-	1.3	V
Reverse Recovery Time	t _{rr}	I _F =0.5A, dI/dt=100A/us,	-	8.2	-	nS
Reverse Recovery Charge	Q _{rr}	V _R =10V	-	3.2	-	nC

Note:

1. Repetitive rating: Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board, $t \leq 10$ sec.
3. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristic Curves

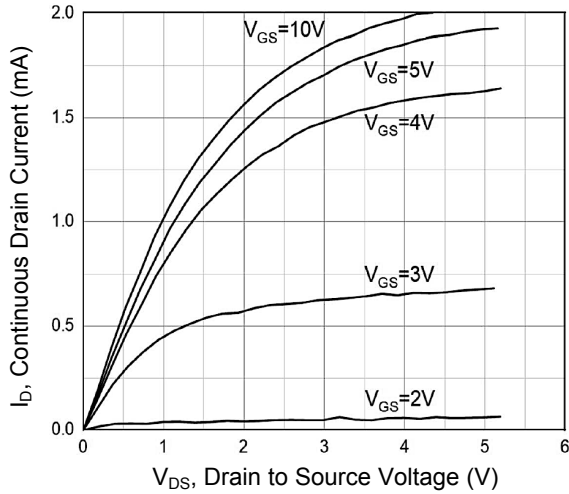


Figure 1. Typical Output Characteristics

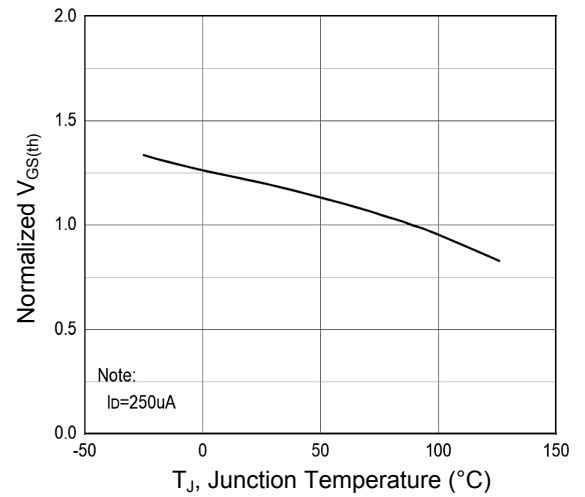


Figure 2. Normalized Threshold Voltage vs. T_J

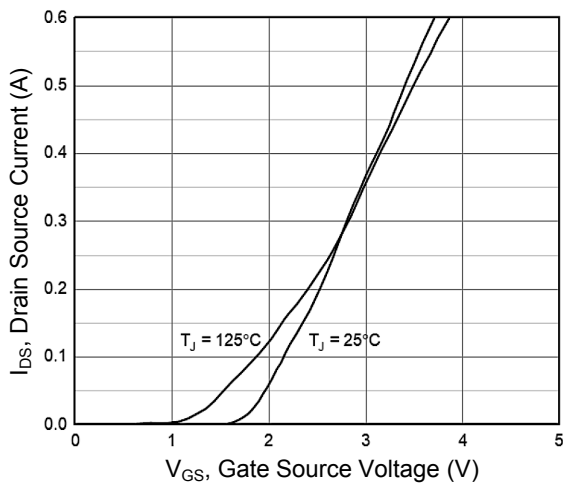


Figure 3. Typical Transfer Characteristics

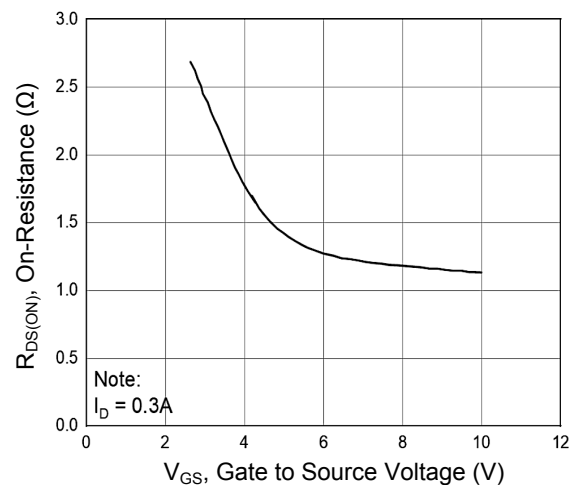


Figure 4. $R_{DS(on)}$ vs. V_{GS}

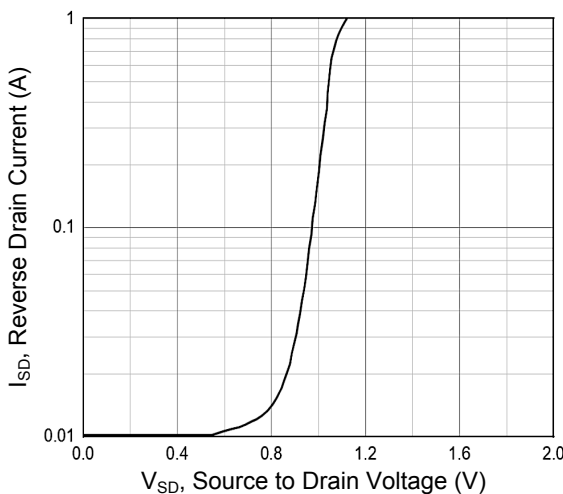


Figure 5. Typical Source-Drain Diode Forward Voltage

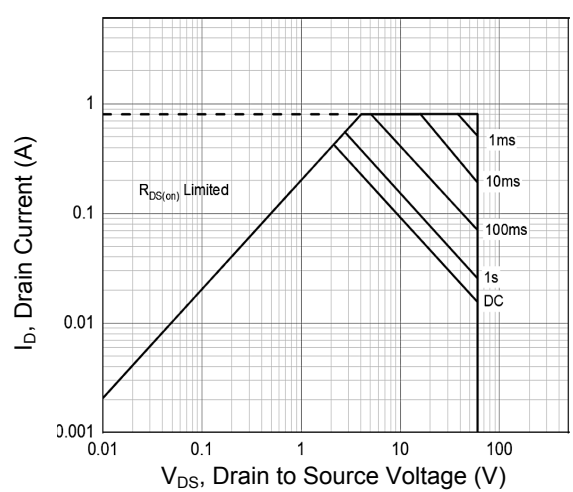


Figure 6. Maximum Safe Operating Area

Typical Electrical and Thermal Characteristic Curves

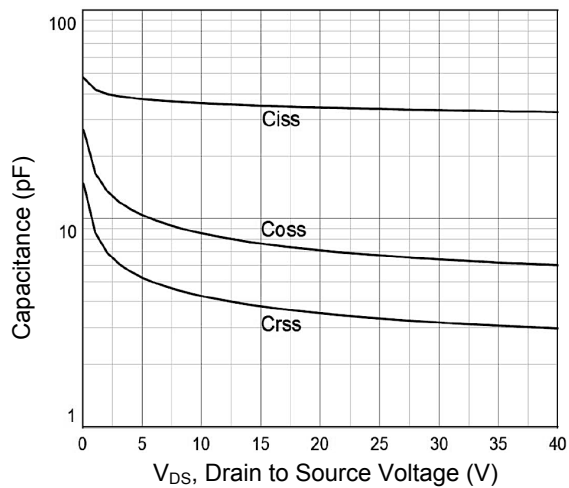


Figure 7. Capacitance Characteristics

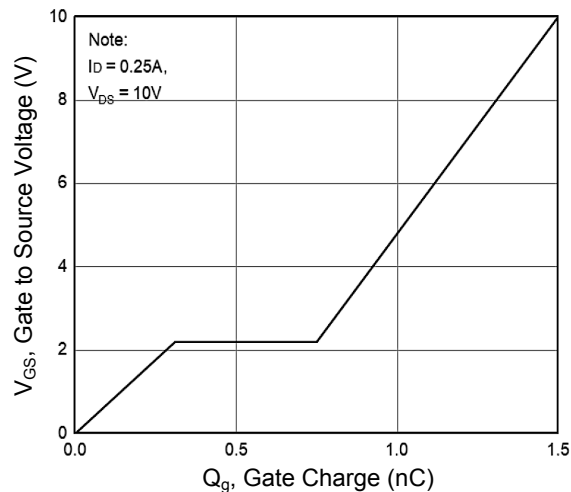


Figure 8. Gate Charge Characteristics

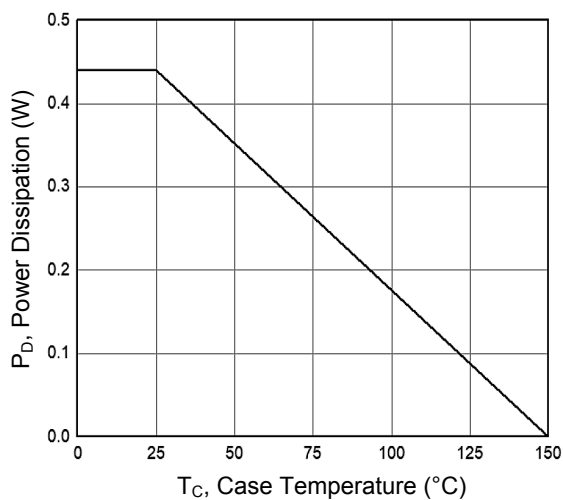
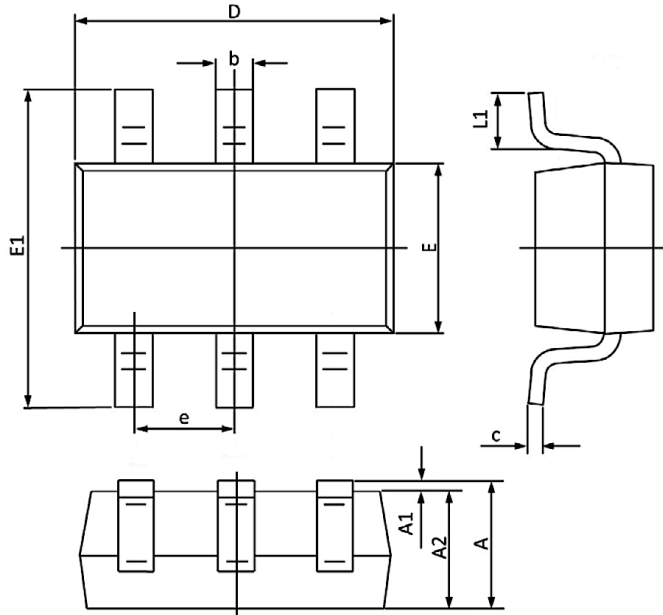


Figure 9. Power Dissipation vs. Case Temperature

Package Outline Dimensions (SOT-363)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.100	0.350	0.004	0.014
c	0.080	0.250	0.003	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	1.800	2.450	0.071	0.096
e	0.650 BSC		0.026 BSC	
L1	0.100	0.460	0.004	0.018

Order Information

Device	Package	Marking	Packaging	SPQ
GSFK6802M	SOT-363	.6mK	Tape & Reel	3,000 Pcs / Reel