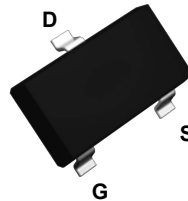
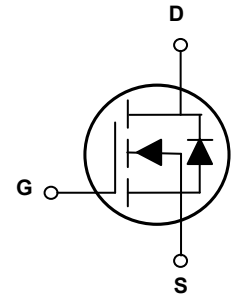


Main Product Characteristics

$V_{(BR)DSS}$	30V
$R_{DS(ON)}$	31m Ω (Max.)
I_D	5.8A



SOT-23



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 GSF3404B 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°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	5.8	A
Drain Current-Pulsed ¹	I_{DM}	20	A
Maximum Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°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	BV _{DSS}	V _{GS} =0V, I _D =250μA	30	33	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage ³	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.0	V
Drain-Source On-State Resistance ³	R _{DS(ON)}	V _{GS} =10V, I _D =5A	-	25.5	31	mΩ
		V _{GS} =4.5V, I _D =4A	-	36	45	
Forward Transconductance ³	g _{fs}	V _{DS} =5V, I _D =5A	-	15	-	S
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, F=1.0MHz	-	255	-	pF
Output Capacitance	C _{oss}		-	45	-	
Reverse Transfer Capacitance	C _{rss}		-	35	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =15V, R _L =3Ω, V _{GS} =10V, R _{GEN} =3Ω	-	4.5	-	nS
Turn-On Rise Time	t _r		-	2.5	-	
Turn-Off Delay Time	t _{d(off)}		-	14.5	-	
Turn-Off Fall Time	t _f		-	3.5	-	
Total Gate Charge	Q _g	V _{DS} =15V, I _D =5A, V _{GS} =10V	-	5.2	-	nC
Gate-Source Charge	Q _{gs}		-	0.85	-	
Gate-Drain Charge	Q _{gd}		-	1.3	-	
Drain-Source Ratings and Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} =0V, I _S =5A	-	-	1.2	V
Diode Forward Current ²	I _S	-	-	-	5	A

Notes:

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 $\leq 2\%$.

Typical Electrical and Thermal Characteristic Curves

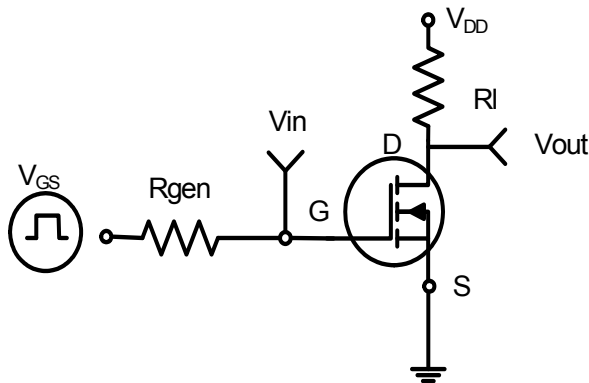


Figure 1. Switching Test Circuit

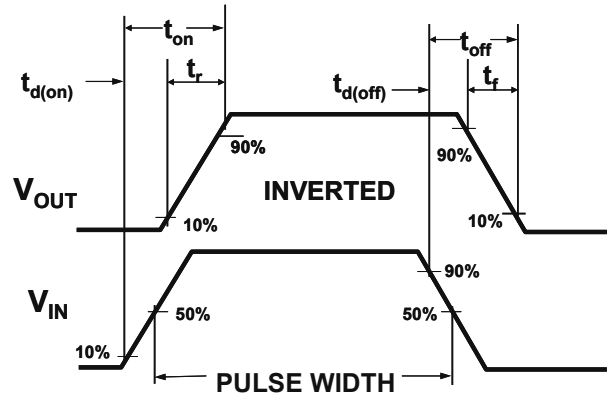


Figure 2. Switching Waveforms

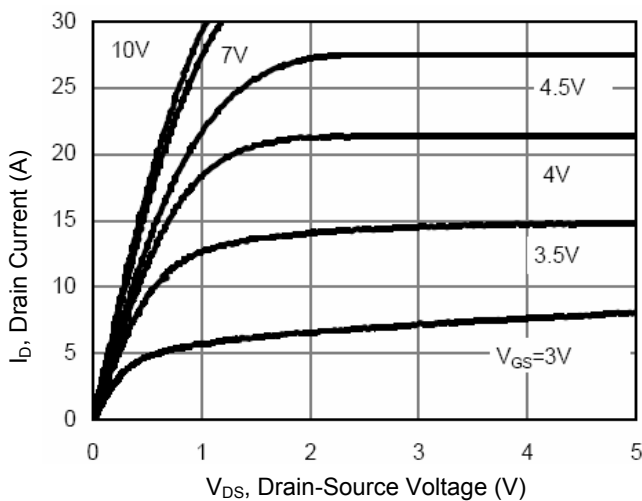


Figure 3. Output Characteristics

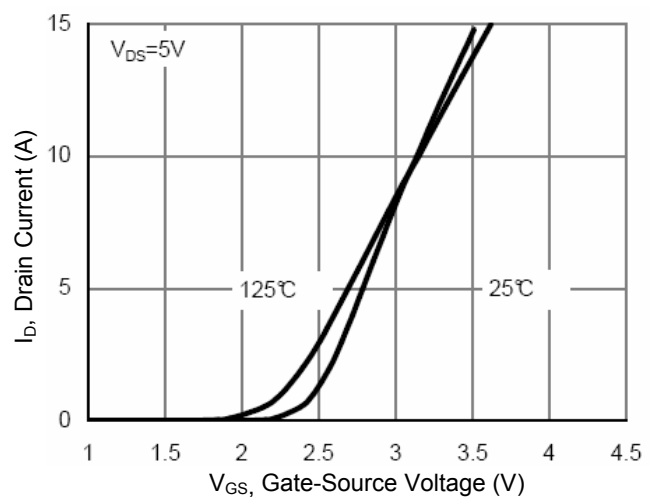


Figure 4. Transfer Characteristics

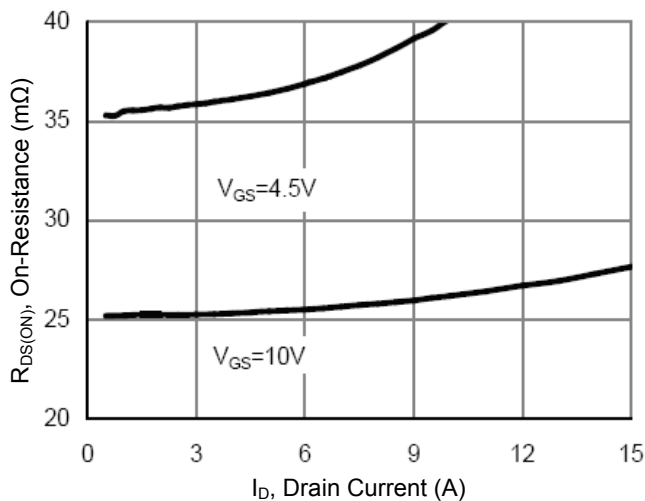


Figure 5. Drain-Source On-Resistance

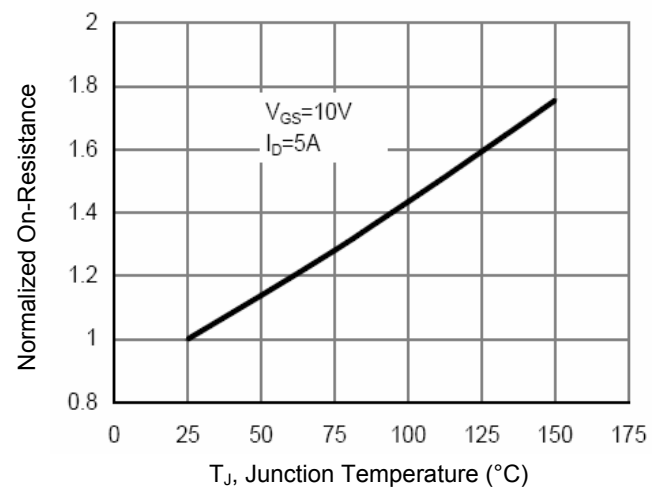


Figure 6. Drain-Source On-Resistance

Typical Electrical and Thermal Characteristic Curves

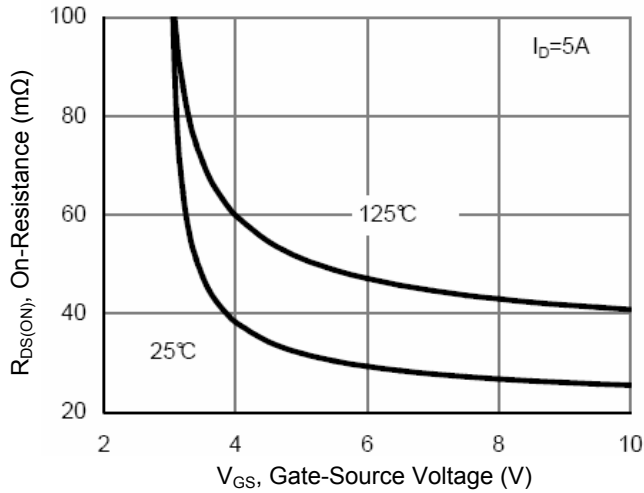


Figure 7. $R_{DS(ON)}$ vs. V_{GS}

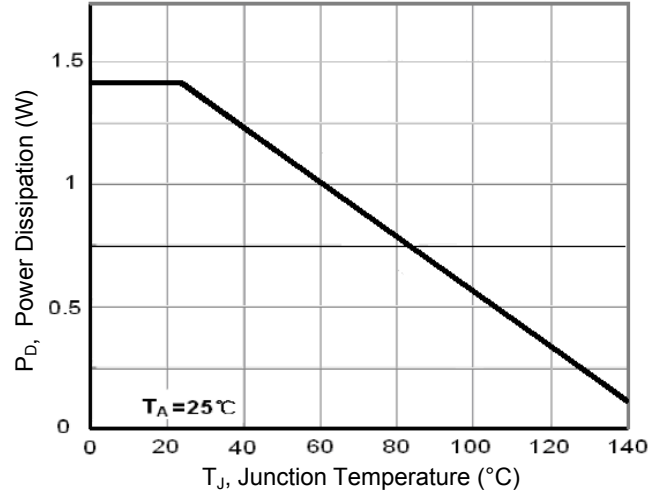


Figure 8. Power Dissipation

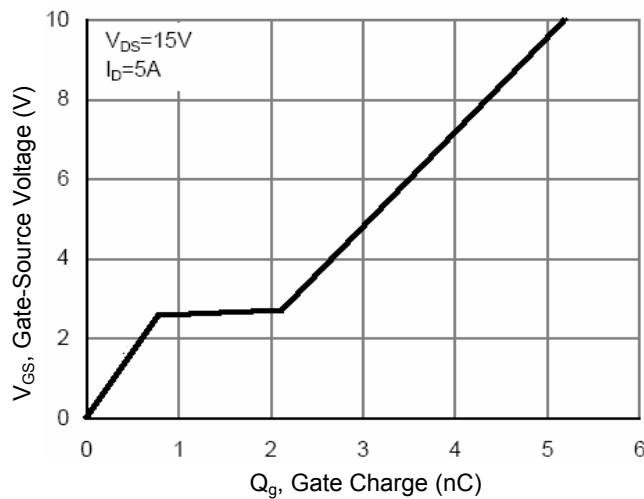


Figure 9. Gate Charge

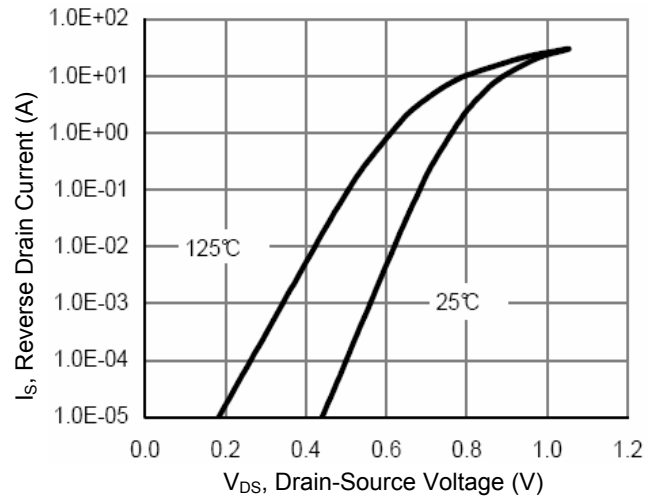


Figure 10. Source-Drain Diode Forward

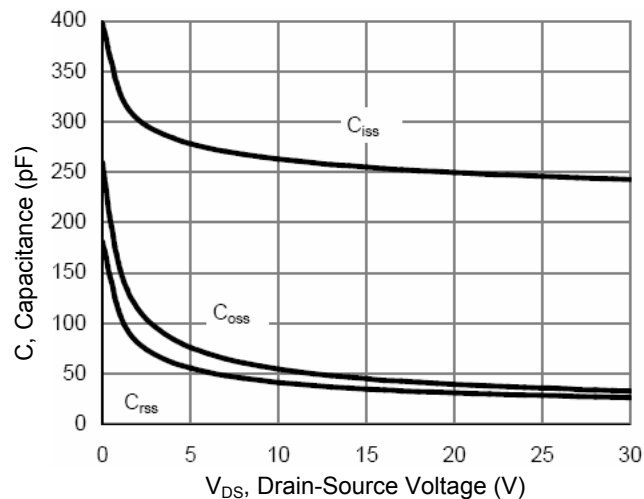


Figure 11. Capacitance vs. V_{DS}

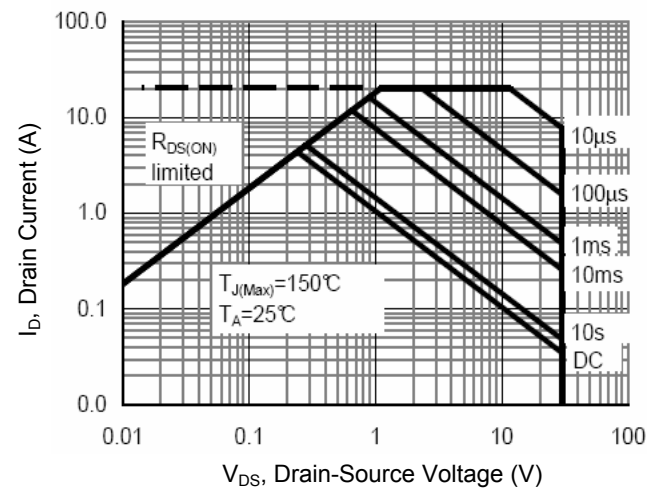


Figure 12. Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

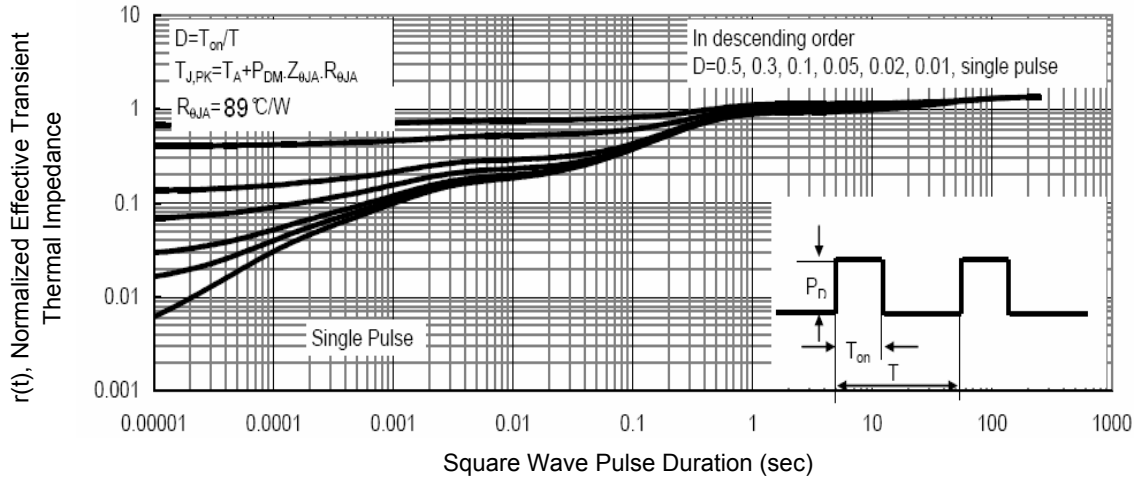
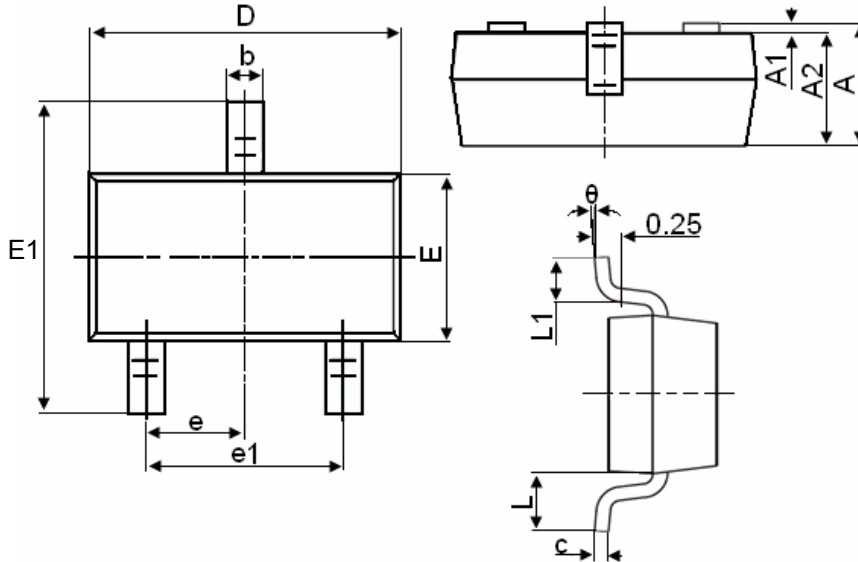


Figure 13. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Packaging	SPQ
GSF3404B	SOT-23	3404	Tape & Reel	3,000 Pcs / Reel