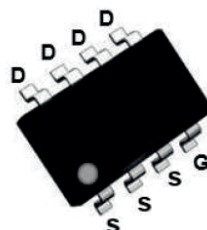
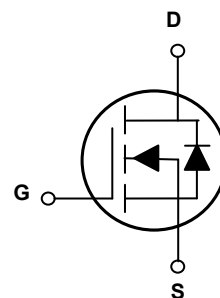


Main Product Characteristics

BV_{DSS}	150V
$R_{DS(ON)}$	35m Ω (Max.)
I_D	8A



SOP-8



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 GSFQ1508 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	Limit	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	8	A
Drain Current-Continuous ($T_A=100^{\circ}\text{C}$)		6	
Pulsed Drain Current	I_{DM}	32	A
Maximum Power Dissipation ($T_A=25^{\circ}\text{C}$)	P_D	5	W
Single Pulse Avalanche Energy ¹	E_{AS}	108	mJ
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	25	$^{\circ}\text{C/W}$
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	BV _{DSS}	V _{GS} =0V, I _D =250μA	150	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =150V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5	3.4	4.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =8A	-	30	35	mΩ
Forward Transconductance	gfs	V _{DS} =10V, I _D =8A	-	10	-	S
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V, F=1.0MHz	-	1125	-	pF
Output Capacitance	C _{oss}		-	170	-	
Reverse Transfer Capacitance	C _{rss}		-	20	-	
Turn-On Delay Time ³	t _{d(on)}	V _{DD} =75V, I _D =8A, V _{GS} =10V, R _G =3Ω	-	15	-	nS
Turn-On Rise Time ³	t _r		-	5	-	
Turn-Off Delay Time ³	t _{d(off)}		-	21	-	
Turn-Off Fall Time ³	t _f		-	8	-	
Total Gate Charge ³	Q _g	V _{DS} =75V, I _D =4A, V _{GS} =10V	-	19.8	-	nC
Gate-Source Charge ³	Q _{gs}		-	6.1	-	
Gate-Drain Charge ³	Q _{gd}		-	5.6	-	
Source-Drain Ratings and Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =8A	-	-	1.2	V
Diode Forward Current	I _S	-	-	-	8	A
Reverse Recovery Time	T _{rr}	T _J =25°C, I _F =I _S di/dt=100A/μs	-	34	-	nS
Reverse Recovery Charge	Q _{rr}		-	80	-	nC

Notes:

1. EAS condition: $T_J=25^\circ\text{C}, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25\Omega$.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design.
3. Guaranteed by design, not subject to production.
4. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_{J(MAX)}=150^\circ\text{C}$. The SOA curve provides a single pulse rating.

Typical Electrical and Thermal Characteristic Curves

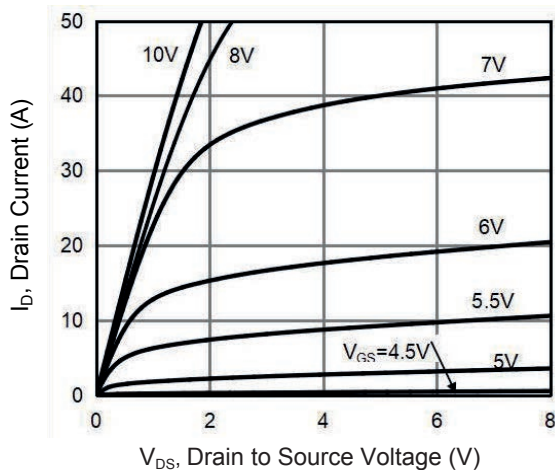


Figure 1. Output Characteristics

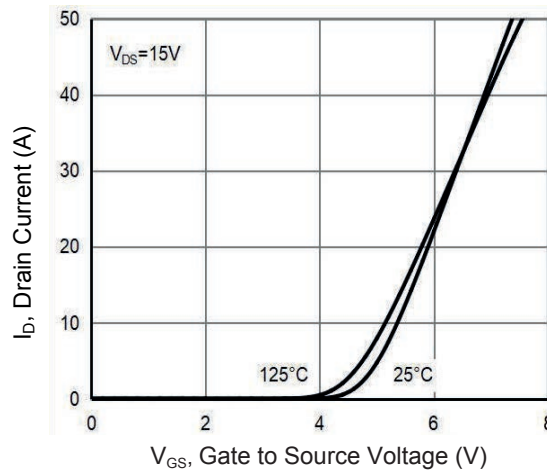


Figure 2. Transfer Characteristics

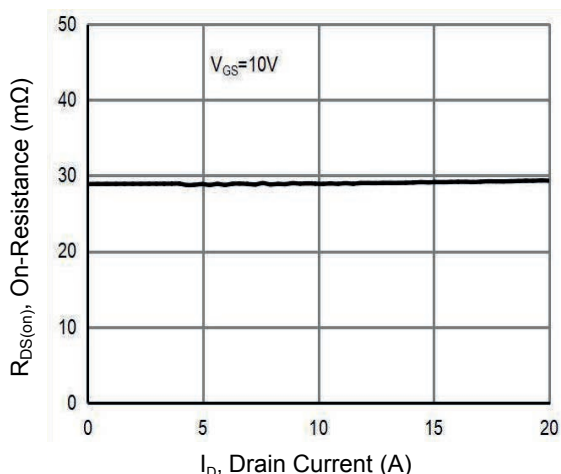


Figure 3. $R_{DS(ON)}$ vs. Drain Current

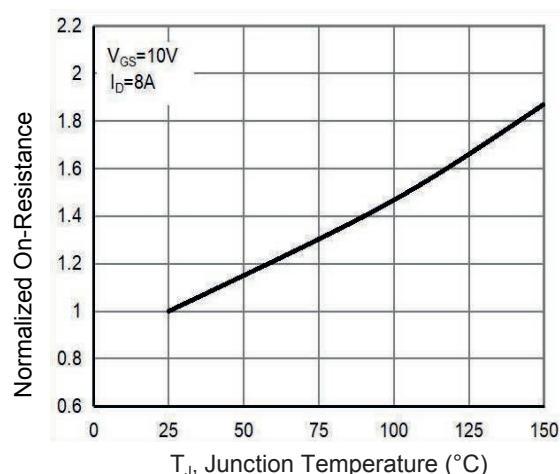


Figure 4. $R_{DS(ON)}$ vs. Junction Temperature

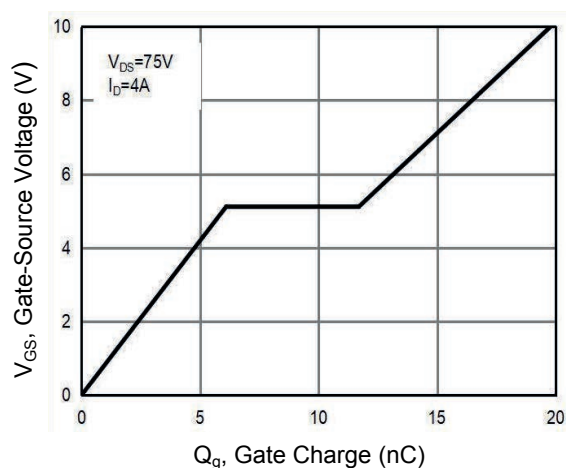


Figure 5. Gate Charge

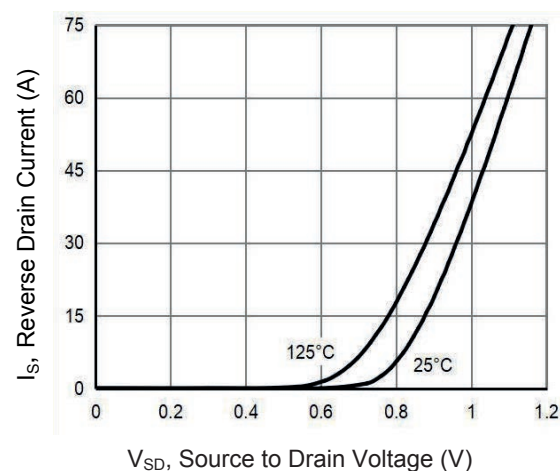


Figure 6. Source-Drain Diode Forward Voltage

Typical Electrical and Thermal Characteristic Curves

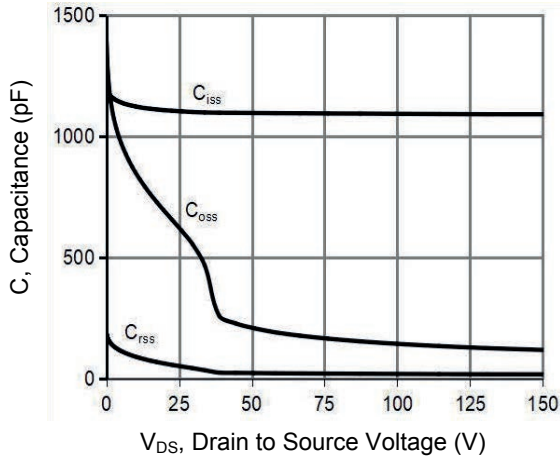


Figure 7. Capacitance vs. V_{DS}

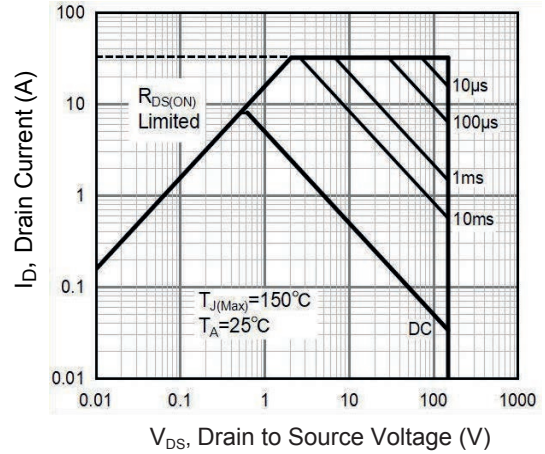


Figure 8. Safe Operating Area⁴

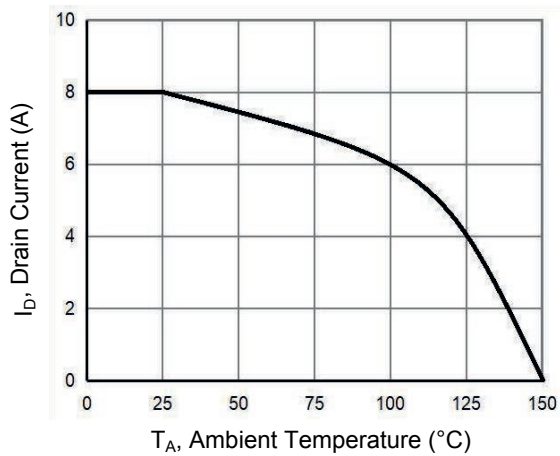


Figure 9. Current De-rating

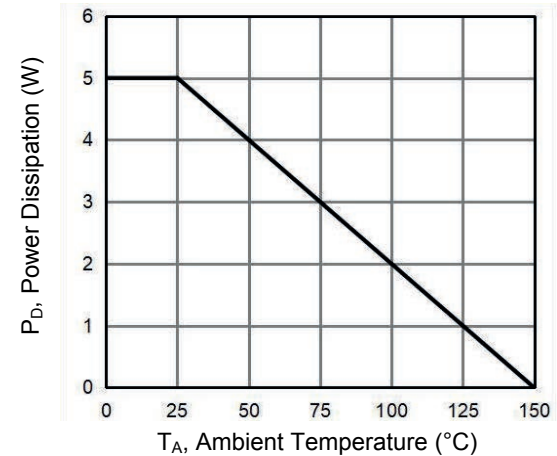


Figure 10. Power De-rating

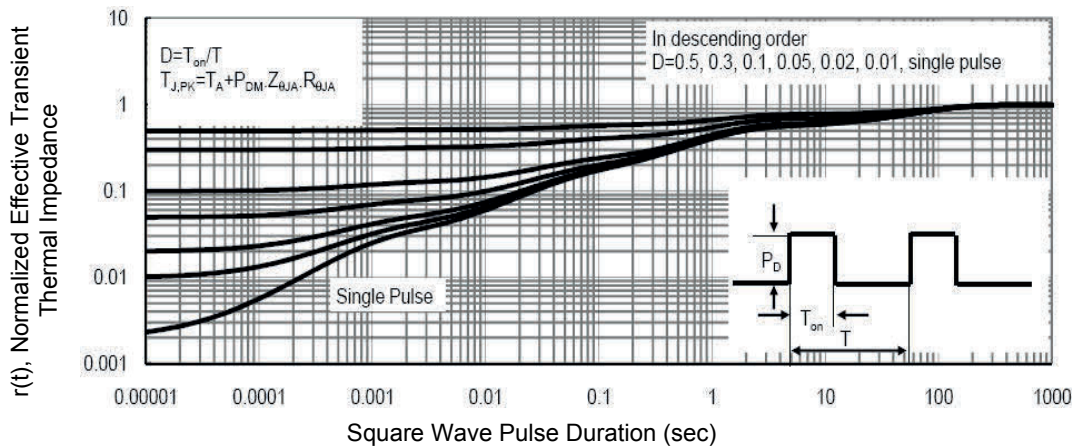
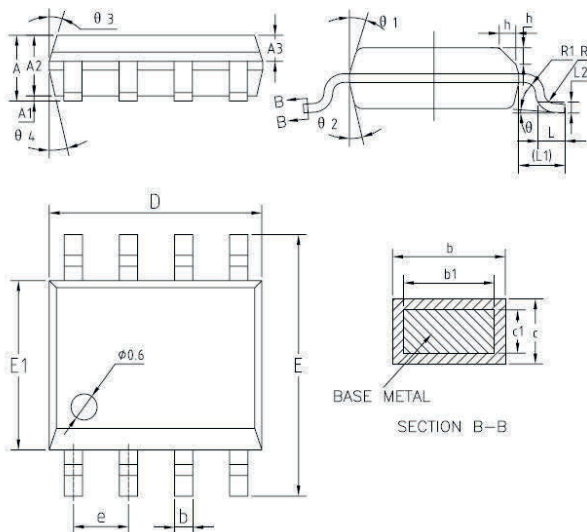


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (SOP-8)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	1.65	0.049	0.065
A3	0.50	0.70	0.020	0.028
b	0.38	0.51	0.015	0.020
b1	0.37	0.47	0.015	0.019
C	0.18	0.25	0.007	0.010
c1	0.17	0.23	0.007	0.009
D	4.80	5.00	0.189	0.197
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.17	1.37	0.046	0.054
L	0.45	0.80	0.018	0.031
L1	1.04 REF		0.041 REF	
L2	0.25 BSC		0.010 BSC	
R	0.07	-	0.003	-
R1	0.07	-	0.003	-
h	0.30	0.50	0.012	0.020
θ	0°	8°	0°	8°
θ1	15°	19°	15°	19°
θ2	11°	15°	11°	15°
θ3	15°	19°	15°	19°
θ4	11°	15°	11°	15°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFQ1508	SOP-8	Q1508	Tape & Reel	4,000 pcs / Reel