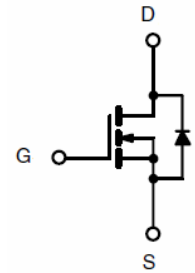
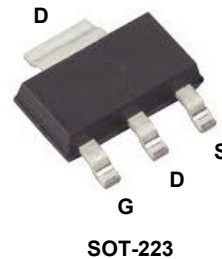


Main Product Characteristics

BV_{DSS}	100V
$R_{DS(ON)}$	140m Ω
I_D	6A



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 GSFL0106 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 supply and a wide variety of other applications.

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

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	6	A
Drain Current-Pulsed ¹	I_{DM}	24	A
Maximum Power Dissipation	P_D	3	W
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	41.7	$^{\circ}\text{C}/\text{W}$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	110	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5A$	-	110	140	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=5A$	-	8	-	S
Dynamic Characteristics⁴						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	-	690	-	pF
Output Capacitance	C_{oss}		-	120	-	
Reverse Transfer Capacitance	C_{rss}		-	90	-	
Switching Characteristics⁴						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, R_G=2.5\Omega, V_{GS}=10V, I_D=2A, R_L=15\Omega$	-	11	-	nS
Turn-On Rise Time	t_r		-	7.4	-	
Turn-Off Delay Time	$t_{d(off)}$		-	35	-	
Turn-Off Fall Time	t_f		-	9.1	-	
Total Gate Charge	Q_g	$V_{DS}=50V, I_D=5A, V_{GS}=10V$	-	15.5	-	nC
Gate-Source Charge	Q_{gs}		-	3.2	-	
Gate-Drain Charge	Q_{gd}		-	4.7	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=6A$	-	-	1.2	V
Diode Forward Current ²	I_S	-	-	-	6	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 $\leq 2\%$.
4. Guaranteed by design, not subject to product

Typical Electrical and Thermal Characteristic Curves

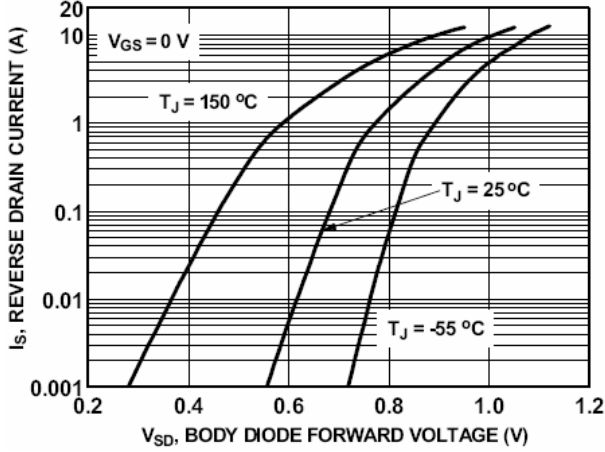


Figure 1. Source-Drain Diode Forward Voltage

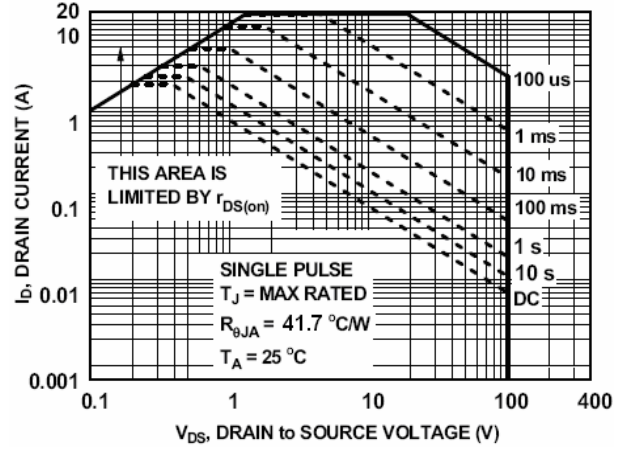


Figure 2. Safe Operating Area

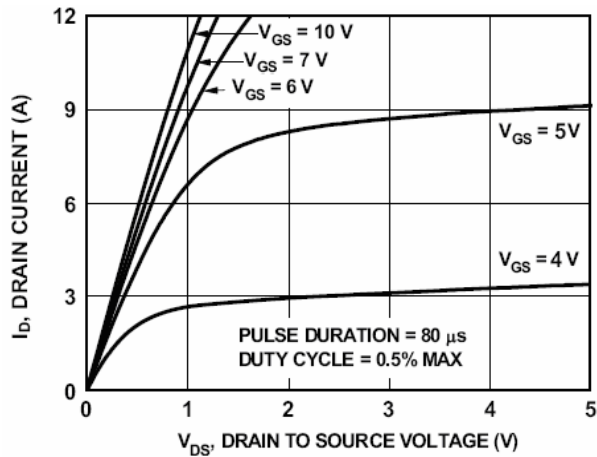


Figure 3. Output Characteristics

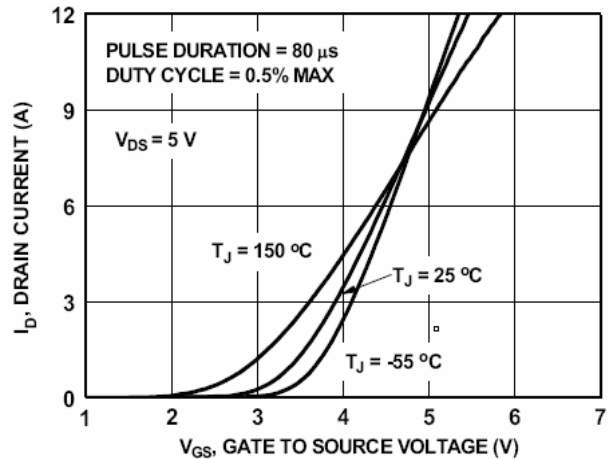


Figure 4. Transfer Characteristics

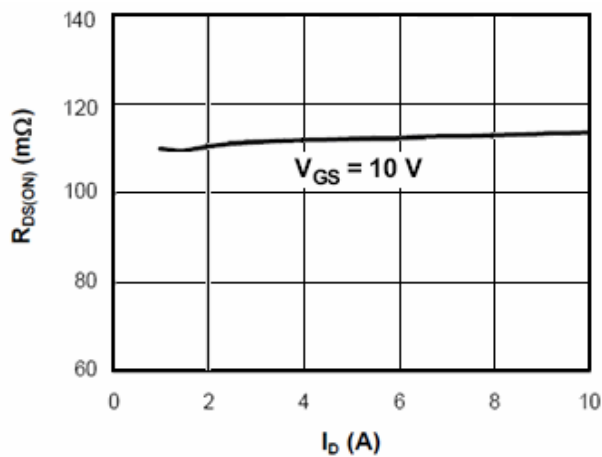


Figure 5. Static Drain-Source On Resistance

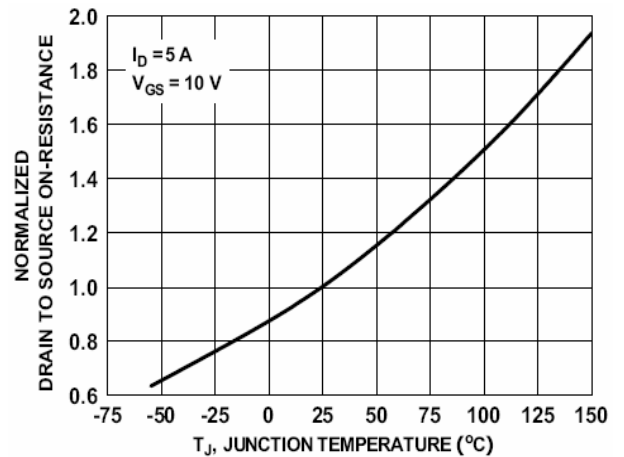


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

Typical Electrical and Thermal Characteristic Curves

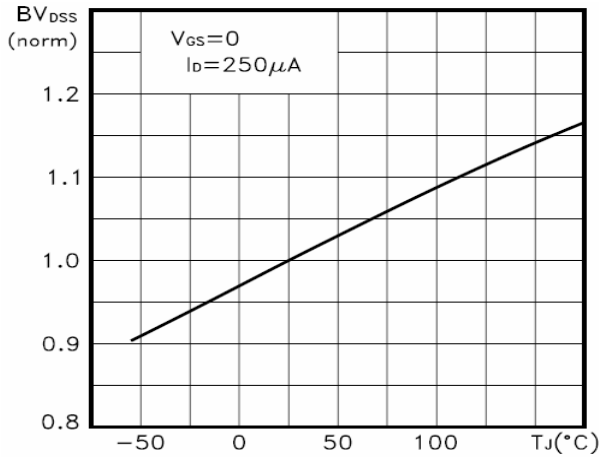


Figure 7. BV_{DSS} vs Junction Temperature

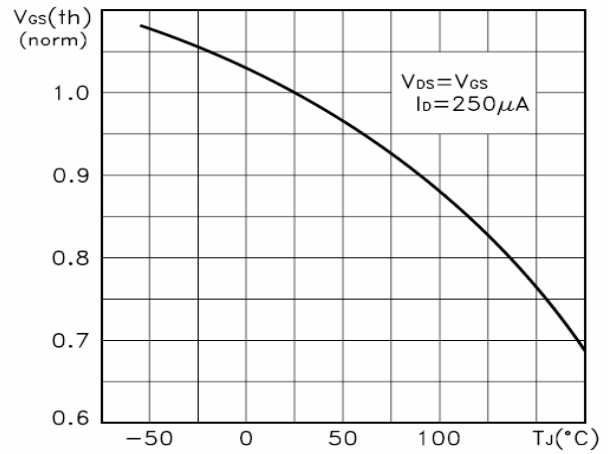


Figure 8. $V_{GS(th)}$ vs Junction Temperature

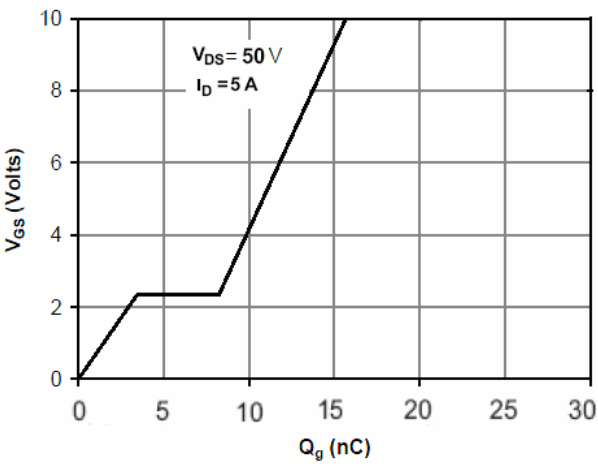


Figure 9. Gate Charge Waveforms

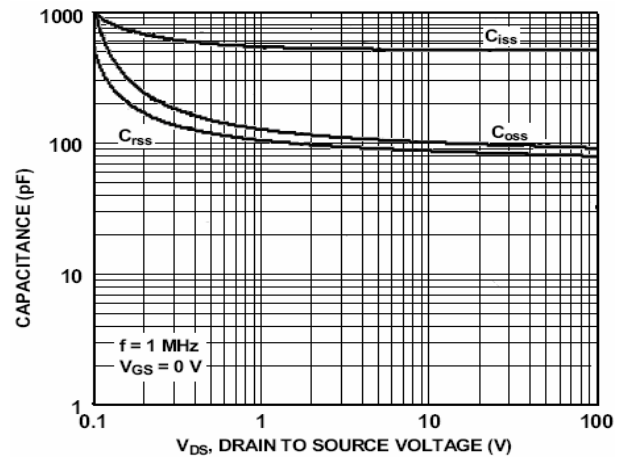


Figure 10. Capacitance

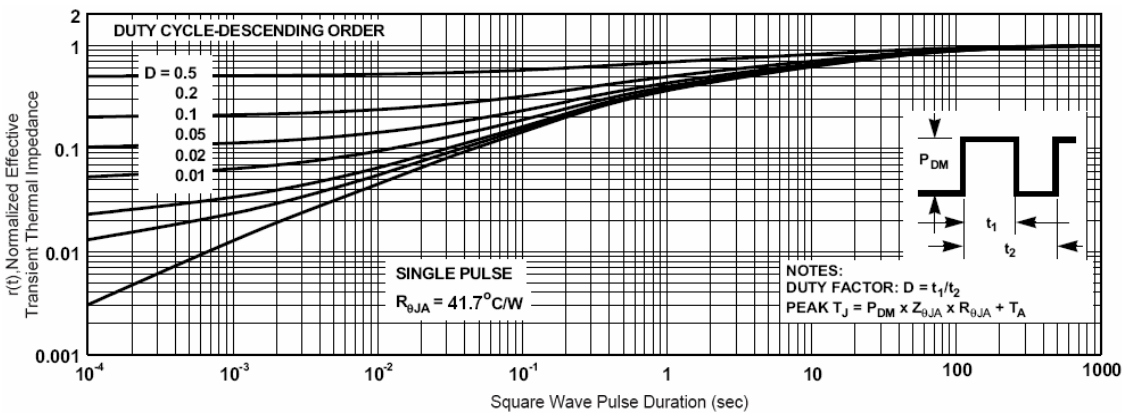


Figure 11. Normalized Maximum Transient Thermal Impedance

Typical Electrical and Thermal Characteristic Curves

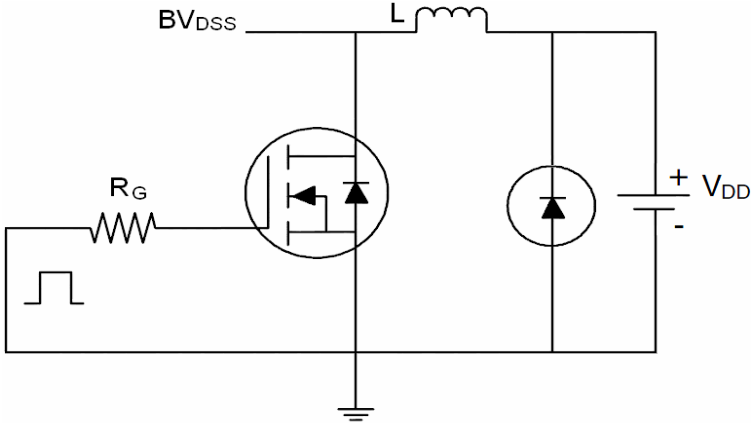


Figure 12. E_{AS} Test Circuit

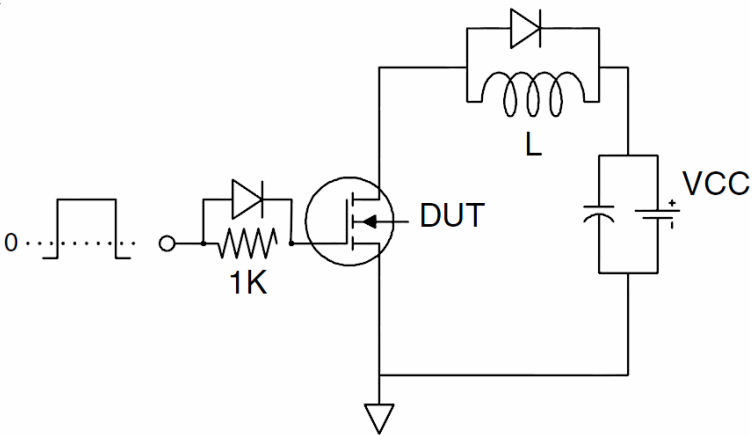


Figure 13. Gate Charge Waveform

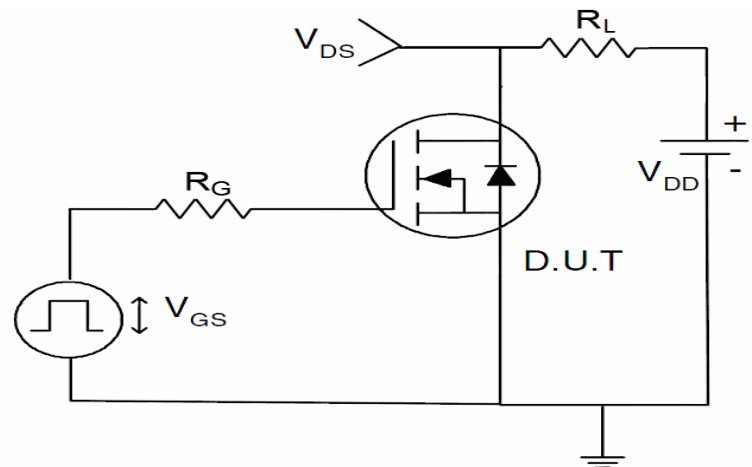
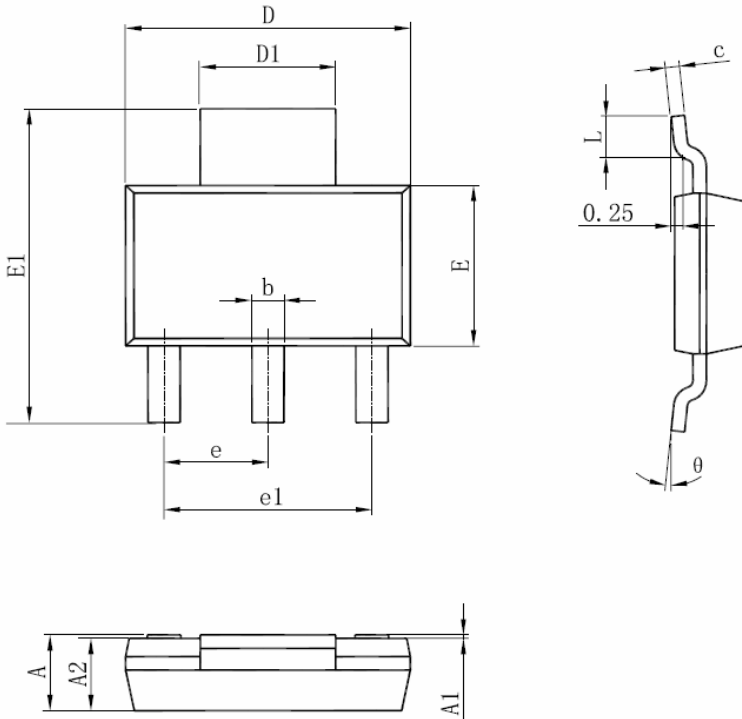


Figure 14. Switch Test Circuit

Package Outline Dimensions (SOT-223)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°

Notes

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.