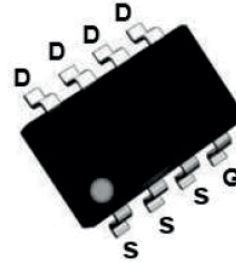
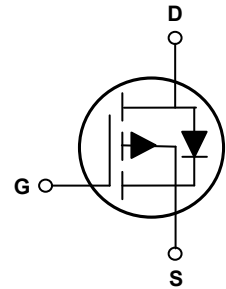


Main Product Characteristics

BV_{DSS}	-60V
$R_{DS(ON)}$	37m Ω (Max.)
I_D	-7.2A



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 GSFQ6037 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	Max.	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous (25°C)	I_D	-7.2	A
Drain Current-Continuous (100°C)		-5.1	
Drain Current-Pulsed ¹	I_{DM}	-28.8	A
Maximum Power Dissipation	P_D	4.0	W
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	38	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$	-	-	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-6A$	-	25	37	m Ω
		$V_{GS}=-4.5V, I_D=-5A$	-	35	45	
Gate Threshold Voltage ³	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	-1.8	-2.9	V
Forward Transconductance ³	gfs	$V_{DS}=-5V, I_D=-6A$	-	35	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ⁴	Q_g	$V_{DS}=-30V, I_D=-6A, V_{GS}=-10V$	-	68	-	nC
Gate-Source Charge ⁴	Q_{gs}		-	11	-	
Gate-Drain Charge ⁴	Q_{gd}		-	13	-	
Turn-On Delay Time ⁴	$t_{d(on)}$	$V_{DS}=-30V, R_{GEN}=3\Omega, V_{GS}=-10V, I_D=2A$	-	13	-	nS
Rise Time ⁴	t_r		-	10	-	
Turn-Off Delay Time ⁴	$t_{d(off)}$		-	64	-	
Fall Time ⁴	t_f		-	15	-	
Input Capacitance	C_{iss}	$V_{DS}=-25V, V_{GS}=0V, F=1MHz$	-	4020	-	pF
Output Capacitance	C_{oss}		-	134	-	
Reverse Transfer Capacitance	C_{rss}		-	99	-	
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_{SD}	-	-	-	-14	A
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=-6A$	-	-0.92	-1.2	V
Reverse Recovery Time	T_{rr}	$I_S=-6A, di/dt=100A/\mu s$	-	26	-	ns
Rever Recovery Charge	Q_{rr}		-	29	-	nC

Notes:

1. Repetitive rating: Pulse width limited by maximum junction temperature.
2. Surface mounted on 1in² 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

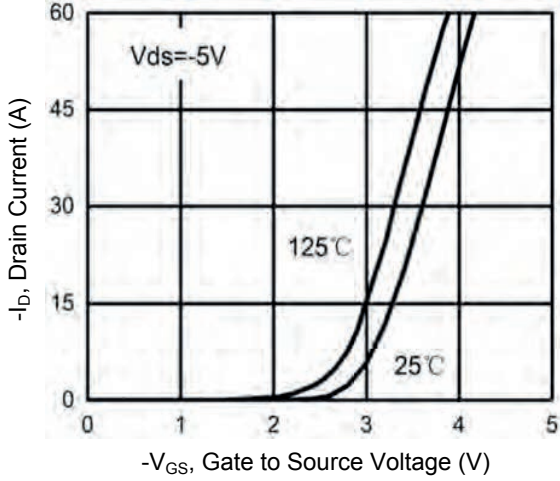


Figure 1. Transfer Characteristics

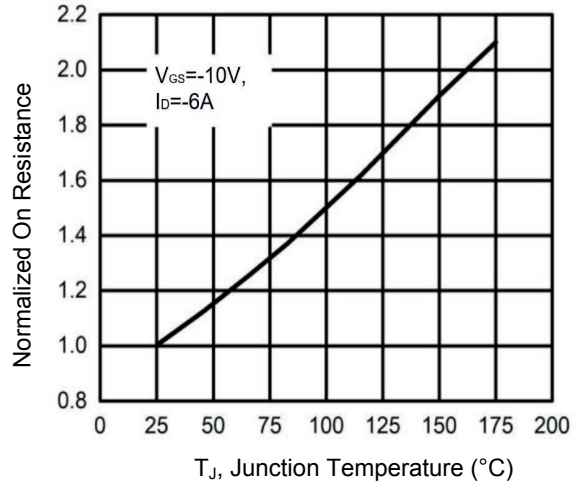


Figure 2. Drain-Source On-Resistance vs. T_j

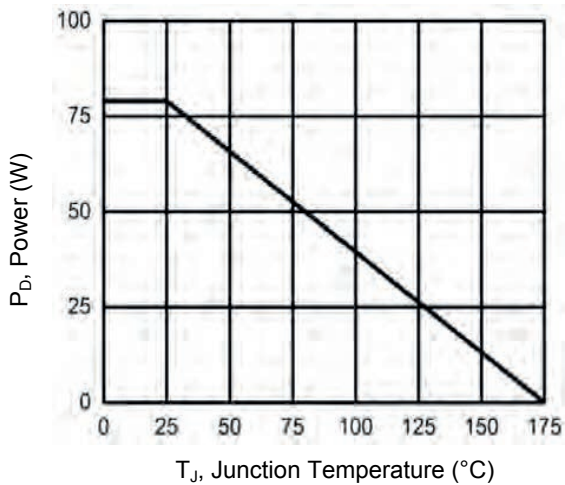


Figure 3. Power Dissipation

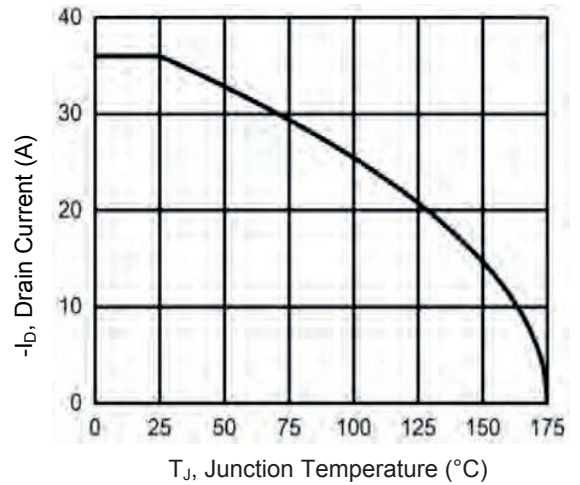


Figure 4. Drain Current

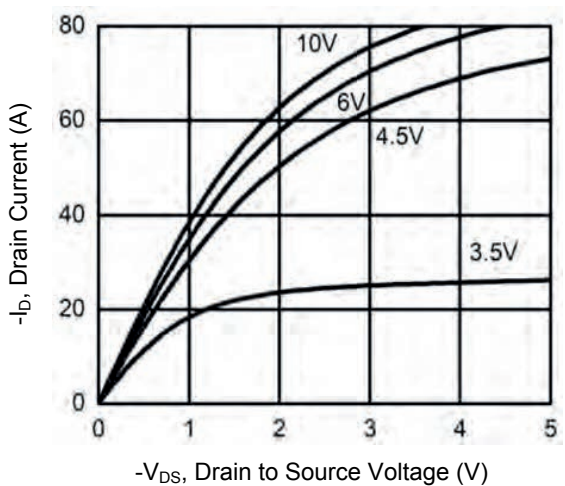


Figure 5. Output Characteristics

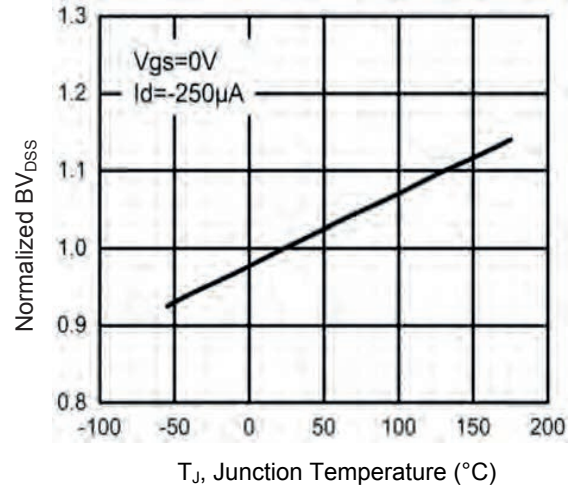


Figure 6. Drain-Source Voltage vs. T_j

Typical Electrical and Thermal Characteristic Curves

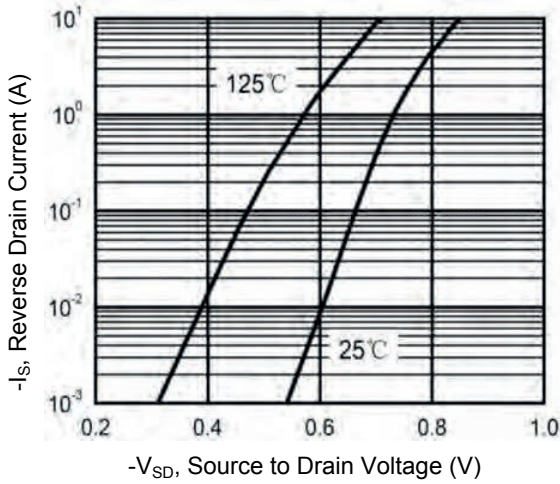


Figure 7. Source-Drain Diode Forward Voltage

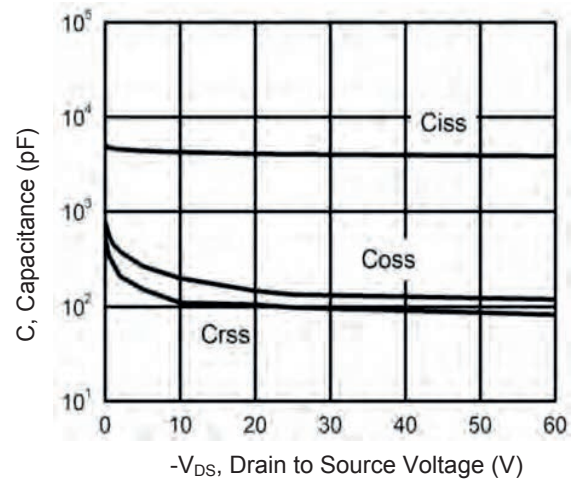


Figure 8. Capacitance vs. V_{DS}

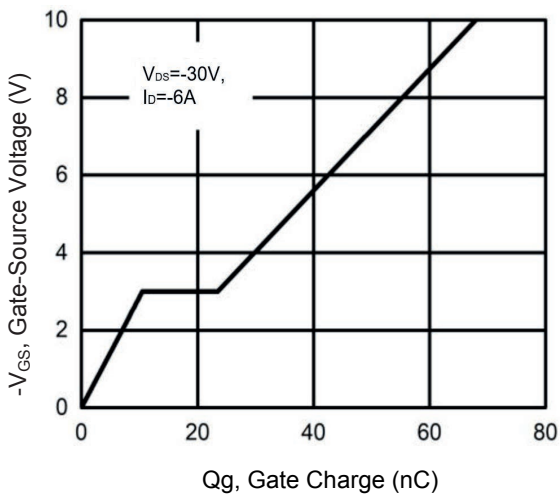
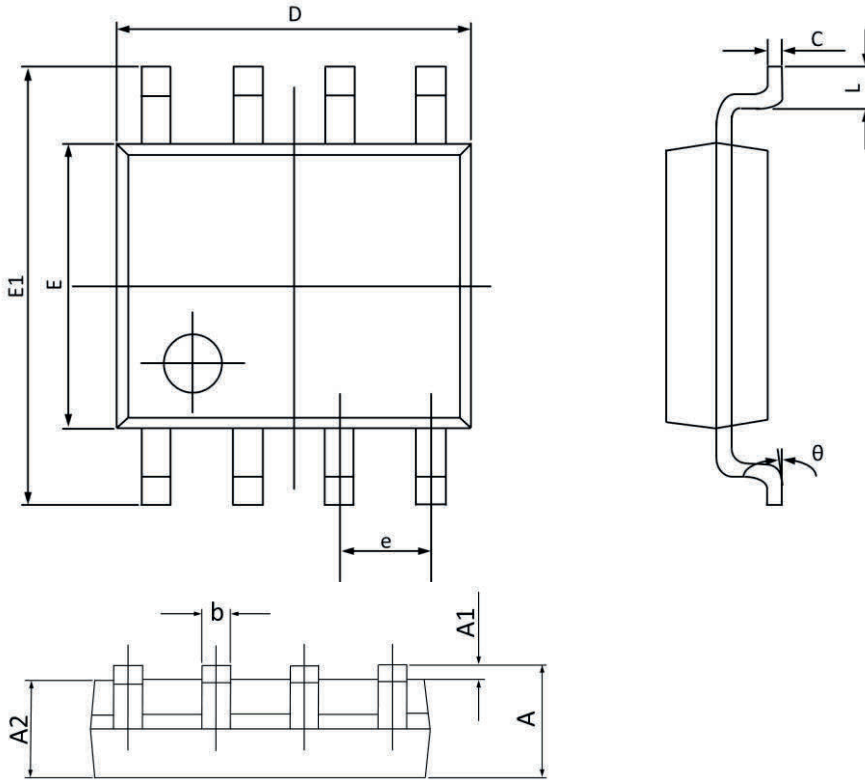


Figure 9. Gate Charge

Package Outline Dimensions (SOP-8)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.300	1.500	0.051	0.059
b	0.350	0.490	0.014	0.019
C	0.190	0.260	0.007	0.010
D	4.700	5.100	0.185	0.201
E	3.700	4.100	0.146	0.161
E1	5.800	6.200	0.228	0.244
e	1.27 BSC		0.05 BSC	
L	0.400	0.900	0.016	0.035
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFQ6037	SOP-8	Q6037	Tape & Reel	3,000 Pcs / Reel