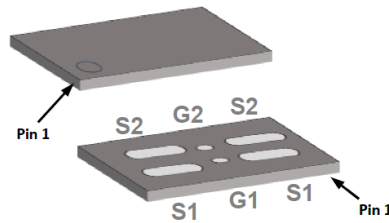
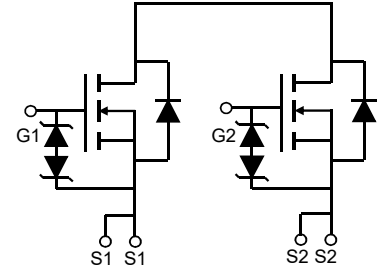


Main Product Characteristics

V_{SSS}	12V
$R_{SS(ON)}$	2.65mΩ(max.)
I_D	16A



CSP



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 GSFCP0116 utilizes the latest techniques to achieve high cell density and low on-resistance and it is ESD protected. 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 ($T_C=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Source-Source Voltage	V_{SSS}	12	V
Gate-Source Voltage	V_{GSS}	±8	V
Source Current(DC)- $T_A=25^{\circ}C$	I_S	16	A
Source Current(DC)- $T_A=70^{\circ}C$		12.8	A
Source Current (Pulse) ¹	I_{SP}	150	A
Total Dissipation- $T_A=25^{\circ}C$	P_T	2.0	W
Power Dissipation Derate above 25°C		0.016	W/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	65	°C/W
Channel Temperature Range	T_{ch}	+150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Source-Source Breakdown Voltage	BV_{SSS}	$V_{GS}=0V, I_S=1mA$	12	-	-	V
Zero Gate Voltage Source Current	I_{SSS}	$V_{SS}=12V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	μA
		$V_{SS}=10V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	10	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{SS}=0V$	-	-	± 10	μA
Gate to Source Threshold Voltage	$V_{GS(th)}$	$V_{SS}=V_{GS}, I_S=1.4mA$	0.4	0.8	1.4	V
Static Source to Source On-Resistance ³	$R_{SS(ON)}$	$V_{GS}=4.5V, I_S=6A$	1.45	2.0	2.65	m Ω
		$V_{GS}=3.8V, I_S=6A$	1.55	2.1	2.75	
		$V_{GS}=3.1V, I_S=6A$	1.7	2.5	4.1	
		$V_{GS}=2.5V, I_S=6A$	2.0	3.2	6.2	
Turn-On Delay Time ^{2,3}	$t_{d(on)}$	$V_{SS}=6V, R_L=6.0\Omega, V_{GS}=4.5V, I_D=6A$	-	25	-	nS
Turn-On Rise Time ^{2,3}	t_r		-	11	-	
Turn-Off Delay Time ^{2,3}	$t_{d(off)}$		-	157	-	
Turn-Off Fall Time ^{2,3}	t_f		-	50	-	
Total Gate Charge ^{2,3}	Q_g	$V_{SS}=6V, I_S=6A, V_{GS}=4.5V$	-	31	-	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	4.3	-	
Gate-Drain Charge ^{2,3}	Q_{gd}		-	7.5	-	
Input Capacitance	C_{iss}	$V_{SS}=6V, V_{GS}=0V, F=1kHz$	-	3340	-	pF
Output Capacitance	C_{oss}		-	1007	-	
Reverse Transfer Capacitance	C_{rss}		-	670	-	
Diode Forward Voltag	$V_{F(S-S)}$	$V_{GS}=0V, I_S=6A, T_J=25^\circ\text{C}$	-	-	1.2	V

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

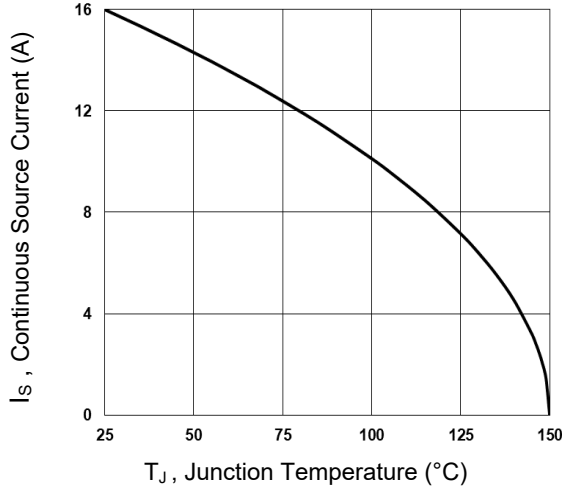


Fig.1 Continuous Source Current vs. T_c

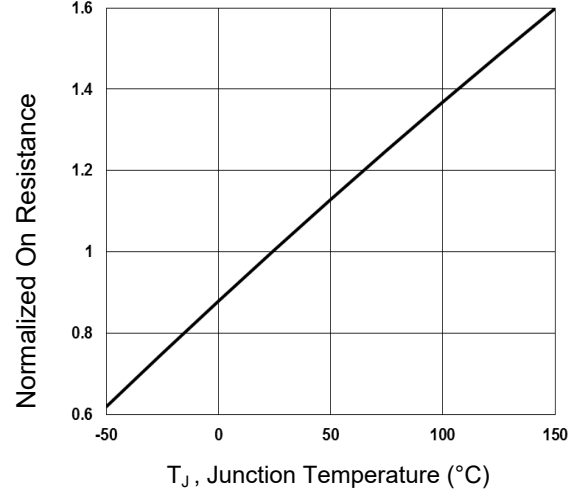


Fig.2 Normalized $R_{SS(ON)}$ vs. T_J

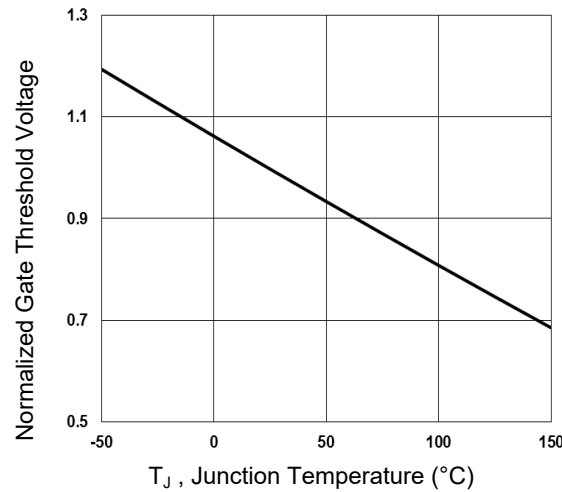


Fig.3 Normalized $V_{GS(th)}$ vs. T_J

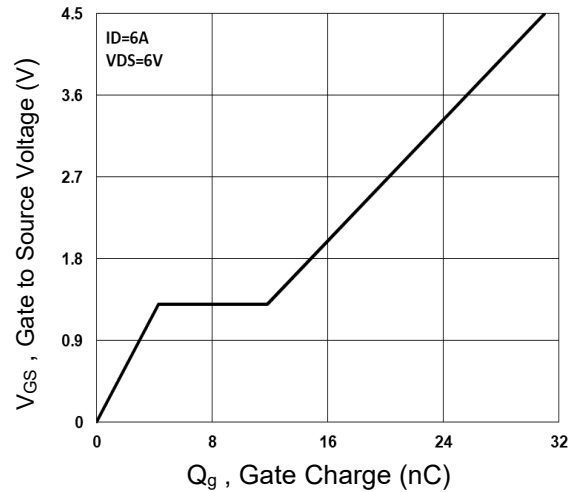


Fig.4 Gate Charge Waveform

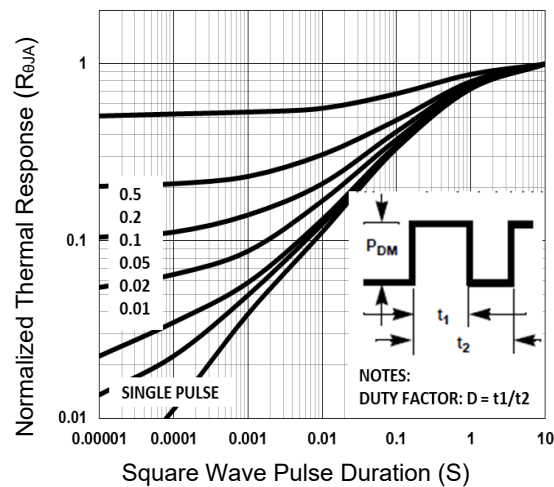


Fig.5 Normalized Transient Impedance

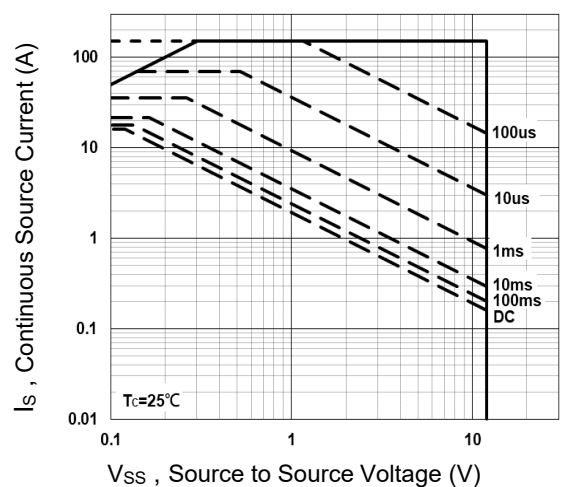
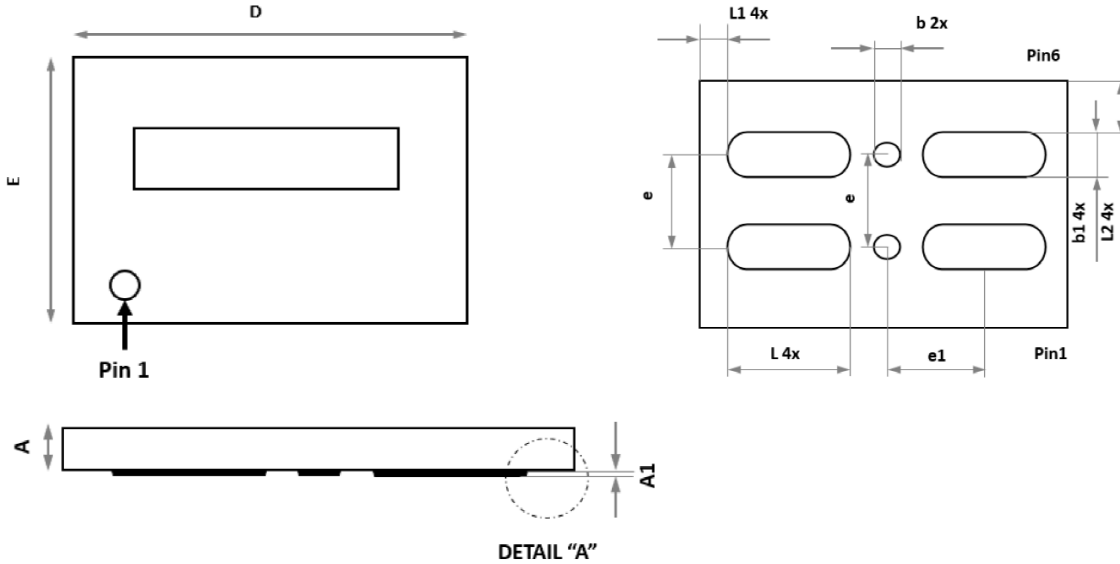


Fig.6 Maximum Safe Operation Area

Package Outline Dimensions (CSP)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.320	0.380	0.013	0.015
A1	-	0.005	-	0.000
D	2.950	3.050	0.116	0.120
E	1.950	2.050	0.077	0.081
b	0.220	0.280	0.009	0.011
b1	0.320	0.380	0.013	0.015
L	0.975	1.035	0.038	0.041
L1	0.070	0.170	0.003	0.007
L2	0.375	0.475	0.015	0.019
e	0.800(BSC)		0.031(BSC)	
e1	0.878(BSC)		0.035(BSC)	