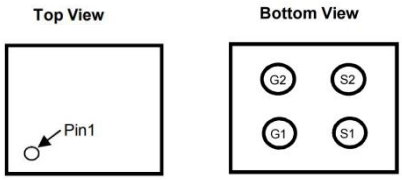
Product Summary

V_{SSS}	$R_{SS(ON)}$ max
20V	＜13.6mΩ @V_{GS}=4.5V
	＜14.0mΩ @V_{GS}=3.8V
	＜15.5mΩ @V_{GS}=3.1V
	＜18.0mΩ @V_{GS}=2.5V

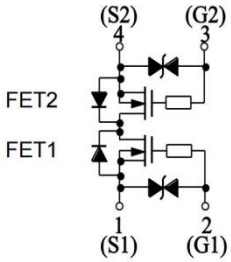
Package & Internal Circuit



Description and Applications

- Low $R_{SS(ON)}$
- Common drain configuration for design simplicity
- RoHS 2.0 and Halogen-Free Compliant
- Battery protection switch
- With ESD Protection, HBM Class 2

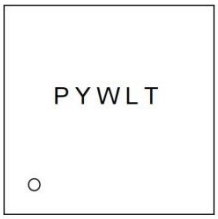
Equivalent circuit



Ordering Information

Part Number	Package Type	Package Qty
CFC22180	WLCSP_1.5x1.5	8,000/Tape & Reel

Marking Information



Green product

P-- Product Number Code

Y--Year

W--Week

LT--Lot sequence

NOTE:Physical screen printing P is C, indicating CFC22180

Absolute Maximum Rating (Tamb=25°C unless otherwise noted)

Parameter		Symbol	Value	Units
Source-Source Voltage		V_{SS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Source Current - Continuous	T_A=25°C	I_S	5	A
		I_S Pulsed	50	A
Power Dissipation (note 1)	T_A=25°C	P_D	0.4	W
Operating and Storage Temperature Range		T_J ,T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient	t ≤ 10s	$R_{\theta JA}$		83	°C/W
Maximum Junction-to-Ambient	Steady-State	$R_{\theta JA}$		95	°C/W

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Static Parameters						
BV_{SSS}	Source-Source Breakdown Voltage	I_S= 1mA, V_{GS}=0V	20			V
I_{SSS}	Zero Gate Voltage Drain Current	V_{SS}=20V, V_{GS}=0V			1	μA
I_{GSS}	Gate-Body leakage current	V_{SS}=0V, V_{GS}= ±8V			±10	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{SS}=8V, I_S=250μA	0.35	0.8	1.1	V
$R_{SS(ON)}$	Static-Source to Source on-Resistance	V_{GS}=4.5V, I_S=2.5A	8.4	10.9	13.6	mΩ
		V_{GS}=3.8V, I_S=2.5A	9.1	11.3	14.0	mΩ
		V_{GS}=3.1V, I_S=2.5A	9.4	12.0	15.5	mΩ
		V_{GS}=2.5V, I_S=2.5A	10.1	13.0	18.0	mΩ
V_{FSS}	Forward Source to Source Voltage	V_{GS}= 4.5V, I_S=2.5A		0.75	1.0	V
Dynamic parameters						
C_{iss}	Input Capacitance	V_{GS}=0V V_{SS}=10V f=100KHz		1781		pF
C_{oss}	Output Capacitance			145		pF
C_{rss}	Reverse Transfer Capacitance			55		pF
Switching Parameters						
Q_g	Total Gate Charge	V_{GS}=4.5V V_{DD}=10V I_S=2.5A		18.1		nC
Q_{gs}	Gate Source Charge			1.85		nC
Q_{gd}	Gate Drain Charge			3.77		nC
$t_{D(on)}$	Turn-On Delay Time	V_{DD}=4V I_S=2.5A V_{GS}=4V		0.6		μs
$t_{D(off)}$	Turn-Off Delay Time			3		μs

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

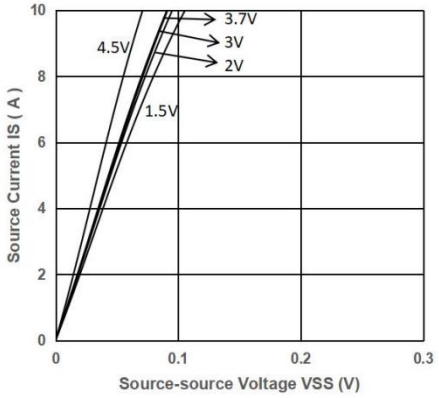


Figure 1: On-Region Characteristics

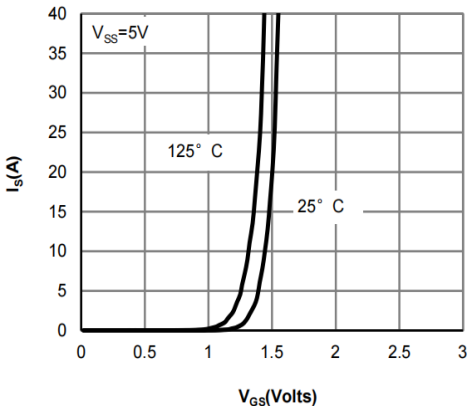


Figure 2: Transfer Characteristics

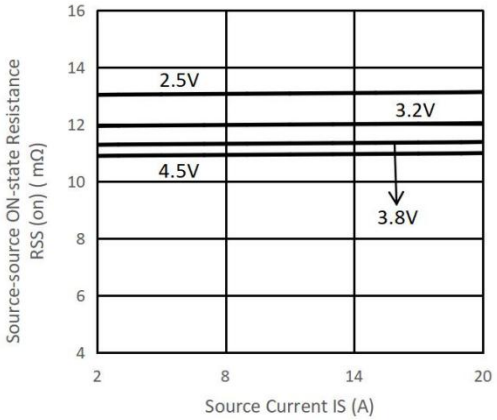


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

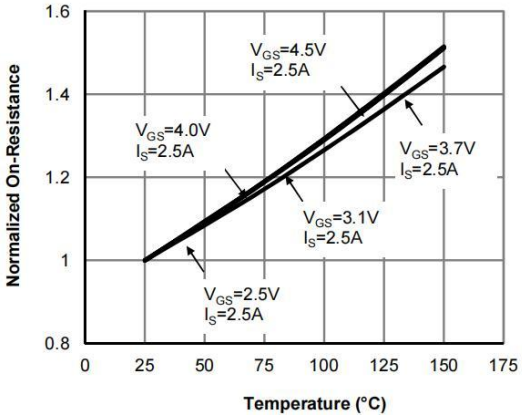


Figure 4: On-Resistance vs. Junction Temperature

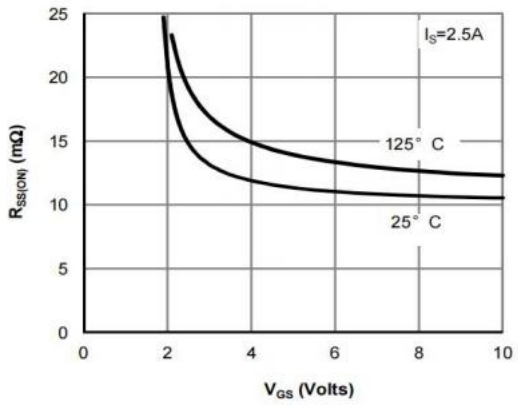


Figure 5: On-Resistance vs. Gate-Source Voltage

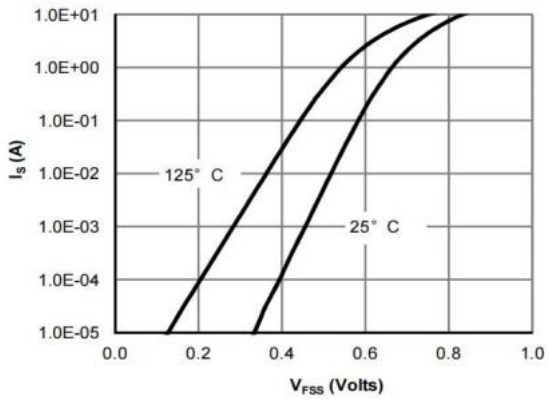


Figure 6: Forward Source to Source Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

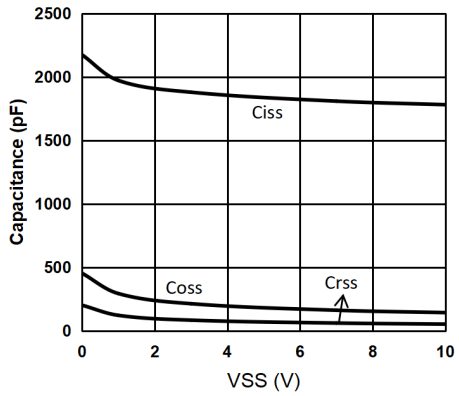


Figure 7: Capacitance Characteristics

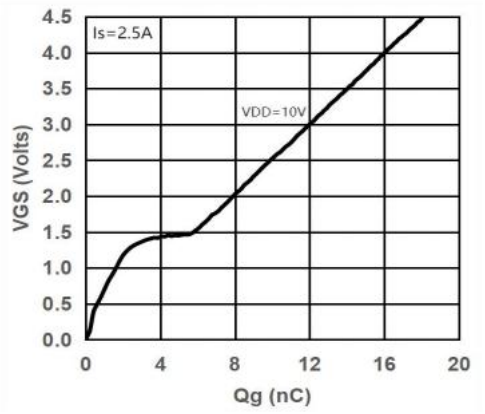


Figure 8: Gate-Charge Characteristics

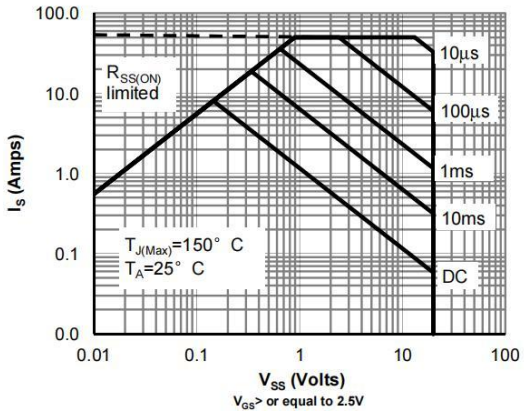


Figure 9: Maximum Forward Biased Safe Operating Area

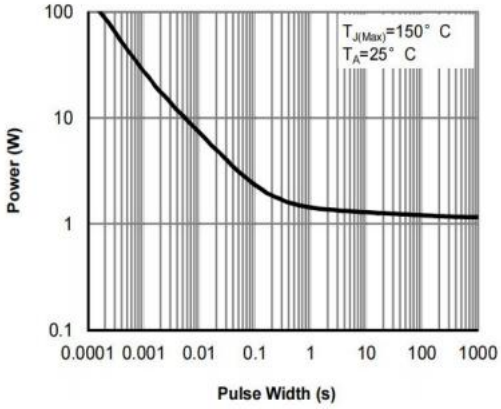
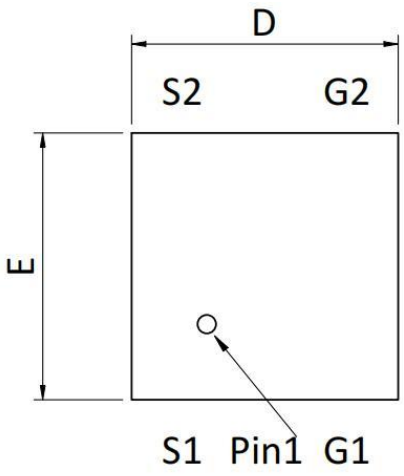
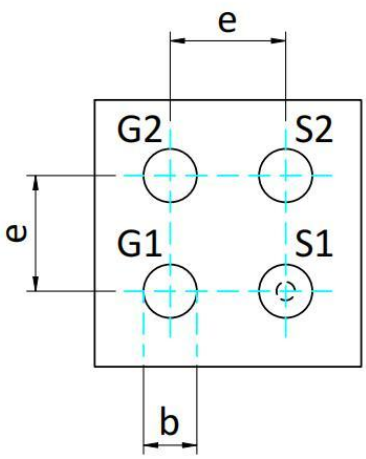


Figure 10: Single Pulse Power Rating Junction-to Ambient

WLCSP_1.5x1.5 Package



TOP VIEW



BOTTOM VIEW

SIDE VIEW

SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.063	0.093	0.123	0.003	0.004	0.005
b	0.270	0.300	0.330	0.011	0.012	0.013
D	1.460	1.500	1.540	0.057	0.059	0.061
E	1.460	1.500	1.540	0.058	0.059	0.060
e	0.65BSC			0.026BSC		

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