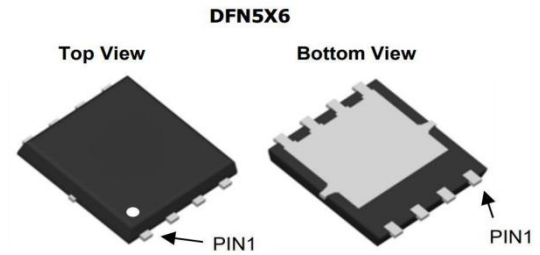


Product Summary

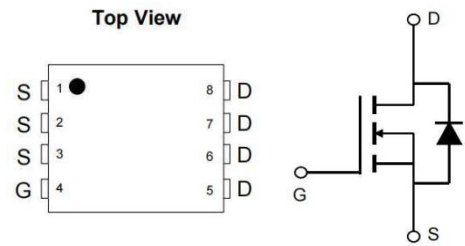
$V_{(BR)DSS}$	$R_{DS(ON)} \text{ max}$	$I_D \text{ max}$
40V	$<1.2\text{m}\Omega @ V_{GS}=10\text{V}$	225A
	$<2.1\text{m}\Omega @ V_{GS}=8\text{V}$	

Package & Internal Circuit



Description and Applications

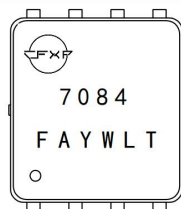
- Latest Trench Power MOS technology
- Very Low $R_{DS(ON)}$ at $4.5V_{GS}$
- Low Gate Charge
- RoHS and Halogen-Free Compliant
- Synchronous rectifier applications
- BLDC Motor drive applications
- DC/DC and AC/DC converters



Ordering Information

Part Number	Package Type	Package Qty
CFN7084	DFN5x6	5,000/Tape & Reel

Marking Information



CFXP-Logo
7084--Part Number
F-Fab location
A-Assembly location
Y--Year
W--Week
LT--Lot sequence

Green product

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

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current - Continuous	I_D	225	A
Pulsed Drain Current	I_{DM}	750	A
Single Pulse Avalanche Energy	E_{AS}	500	mJ
Power Dissipation	P_D	96	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$		50	$^{\circ}\text{C/W}$
Maximum Junction-to-Case	$R_{\theta JC}$	2		$^{\circ}\text{C/W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}$, $V_{GS} = 0\text{V}$	40			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 40\text{V}$, $V_{GS} = 0\text{V}$			1	μA
		$T_J = 55^{\circ}\text{C}$			5	μA
I_{GSS}	Gate-Body leakage current	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$	2.5	3.0	3.5	V
$R_{DS(on)}$	Drain-Source on-Resistance	$V_{GS} = 10\text{V}$, $I_D = 50\text{A}$		1.05	1.2	m Ω
		$V_{GS} = 8\text{V}$, $I_D = 10\text{A}$		1.75	2.1	m Ω
g_{FS}	Forward Transconductance	$V_{DS} = 10\text{V}$, $I_D = 132\text{A}$		280		S
V_{SD}	Body Diode Forward Voltage	$I_S = 1\text{A}$, $V_{GS} = 0\text{V}$		0.65	1	V
I_S	Maximum Body-Diode Continuous Current				100	A
Dynamic parameters						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}$ $V_{DS} = 25\text{V}$ $f = 1.0\text{MHz}$		7600		pF
C_{oss}	Output Capacitance			1050		pF
C_{rss}	Reverse Transfer Capacitance			580		pF
R_g	Gate resistance	$f = 1.0\text{MHz}$		0.95		Ω
Switching Parameters						
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$ $V_{DS} = 20\text{V}$ $I_D = 20\text{A}$		106		nC
Q_{gs}	Gate Source Charge			55.4		nC
Q_{gd}	Gate Drain Charge			25.9		nC
$t_{D(on)}$	Turn-On Delay Time	$V_{GS} = 10\text{V}$ $V_{DS} = 20\text{V}$ $I_D = 30\text{A}$ $R_G = 3\Omega$		39.2		ns
t_r	Turn-On Rise Time			33		ns
$t_{D(off)}$	Turn-Off Delay Time			39.6		ns
t_f	Turn-Off Fall Time			18		ns
t_{rr}	Body Diode Reverse Recovery Time	$I_F = 40\text{A}$ $di/dt = 108\text{A}/\mu\text{s}$		60.8		ns
Q_{rr}	Body Diode Reverse Recovery Charge			99		nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

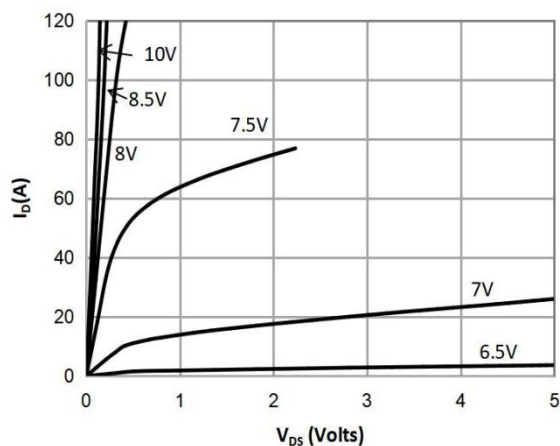


Figure 1: On-Region Characteristics

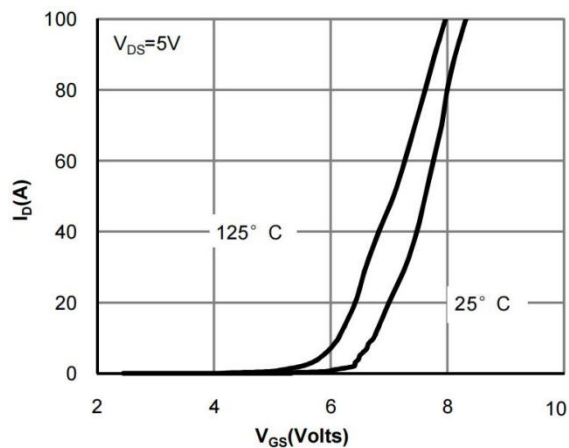


Figure 2: Transfer Characteristics

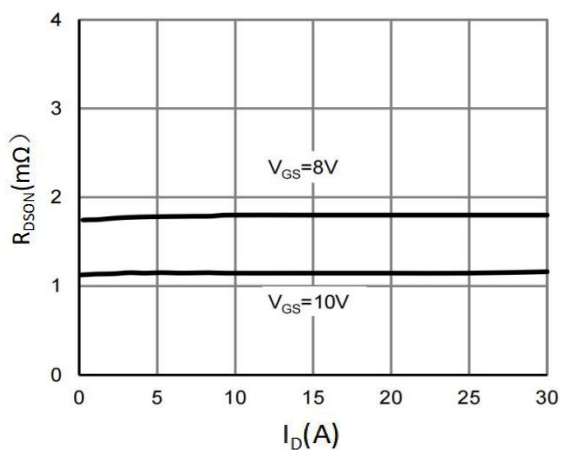


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

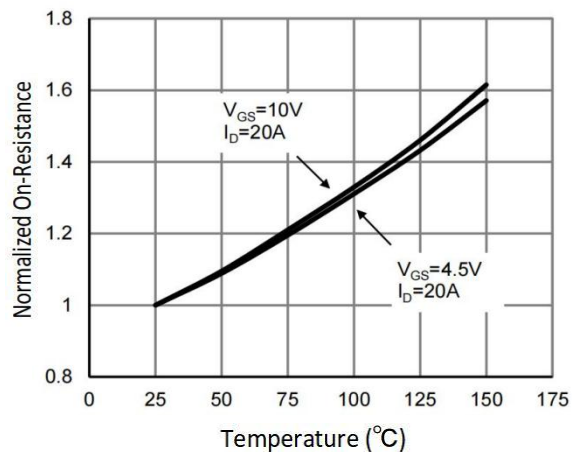


Figure 4: Drain Current

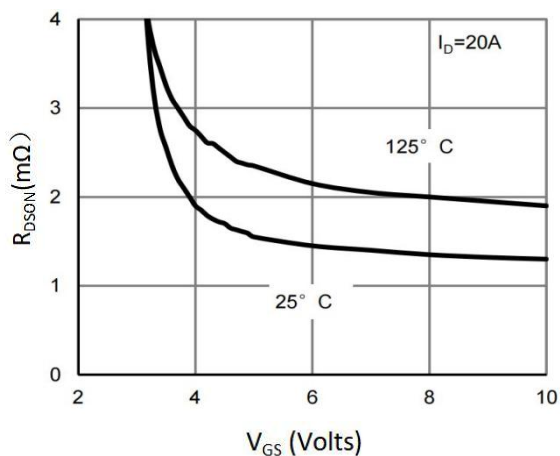


Figure 5: On-Resistance vs. Gate-Source Voltage

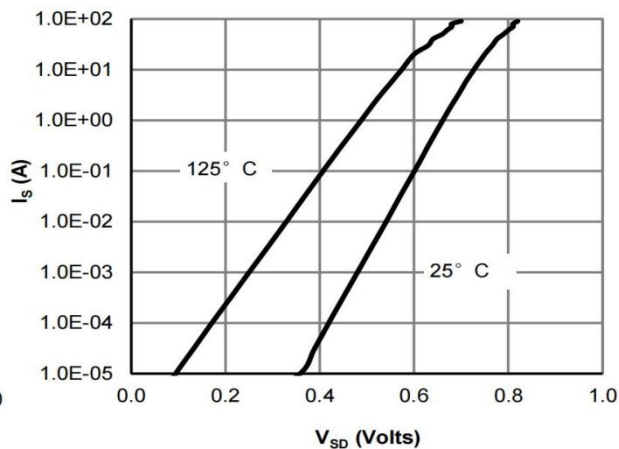


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

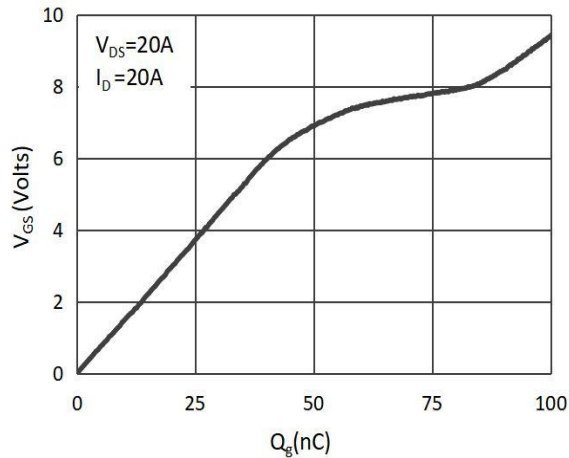


Figure 7: Gate-Charge Characteristics

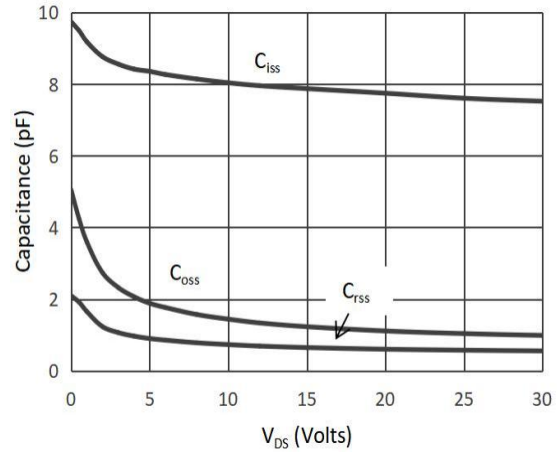


Figure 8: Capacitance Characteristics

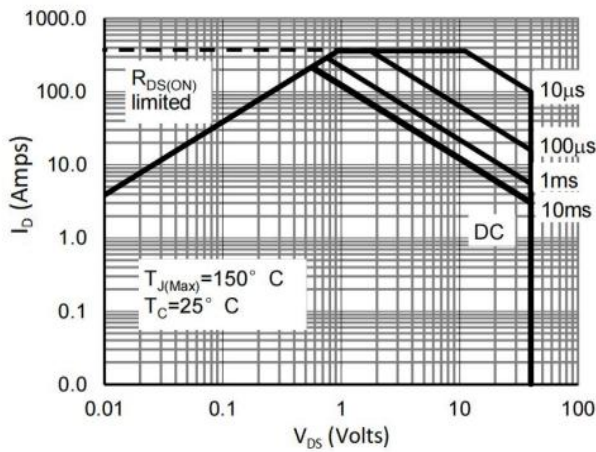


Figure 9: Maximum Forward Biased Safe Operating Area

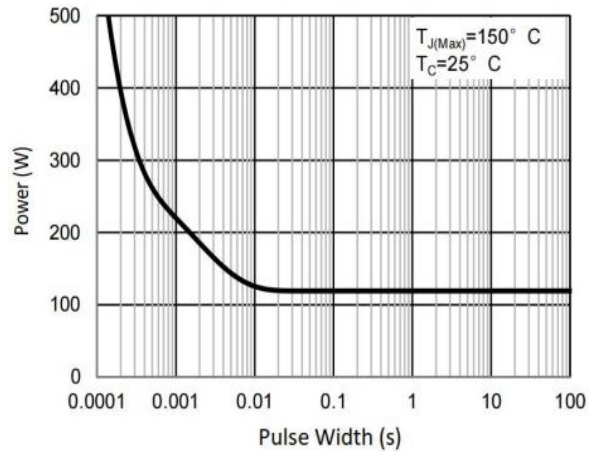


Figure 10: Single Pulse Power Rating Junction-to Case

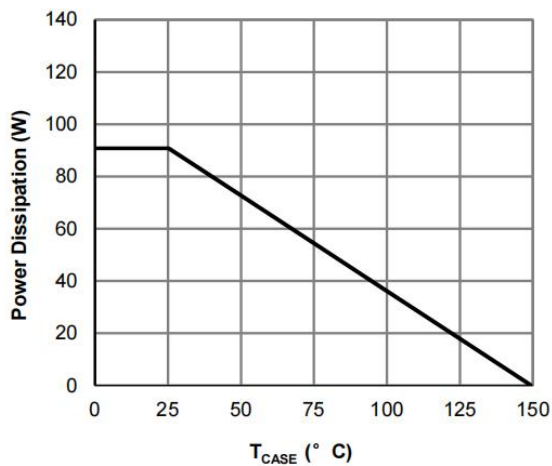


Figure 11: Power Dissipation

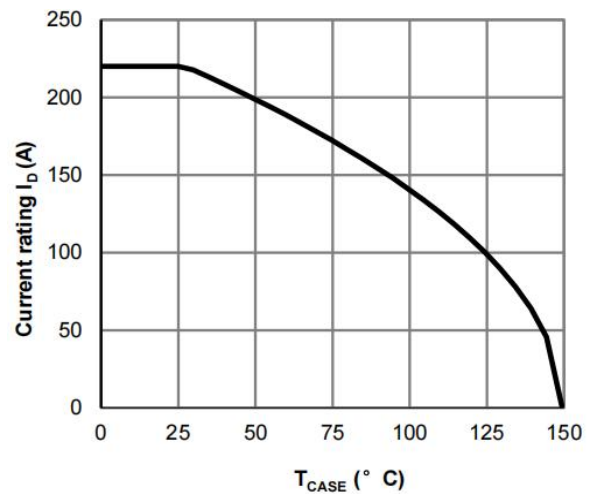
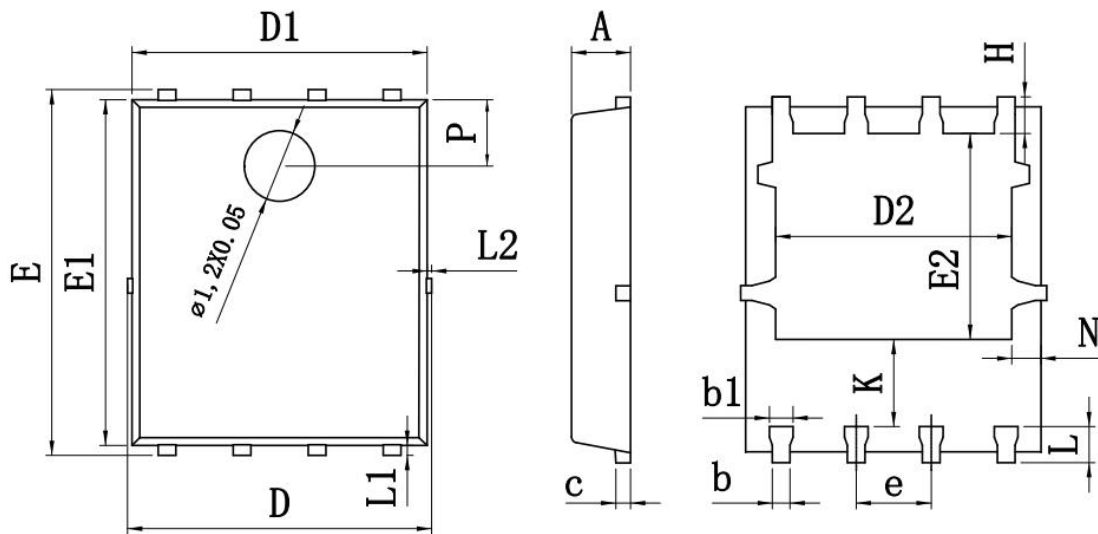


Figure 12: Drain Current

DFN5x6 Package



SYMBOL	mm		
	MIN	NOM	MAX
*A	0.95	1.00	1.05
*b	0.25	0.30	0.35
*b1	0.30	0.40	0.50
*c	0.20	0.25	0.30
D	5.15BSC		
*D1	4.90	5.00	5.10
D2	3.90	4.01	4.20
*e	1.17	1.27	1.37
E	6.15BSC		
*E1	5.75	5.85	5.95
E2	3.35	3.50	3.65
H	0.51	0.61	0.71
K	1.10	1.35	1.50
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
L2	—	—	0.12
N	0.40	0.50	0.60
P	0.95	1.10	1.25
θ	9°	11°	13°

Important Notice

This document contains information that is proprietary to CF-xpower Semiconductor Corp. (“CF-xpower”), and is subject to change without notice. Any part of this document may not be used, reproduced, duplicated or disclosed in any form or any means without the prior written permission of CF-xpower.

CF-xpower does not warrant or represent that any license, either express or implied, is granted under any CF-xpower’s patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which CF-xpower’s products or services are used. In addition, CF-xpower does not assume any liability for the occurrence of infringing on any patent or other intellectual property rights of a third party.

CF-xpower reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete.