



Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)} \text{ max}$	$I_D \text{ max}$
60V	$<2100\text{m}\Omega @V_{GS}=10\text{V}$	0.34A
	$<2800\text{m}\Omega @V_{GS}=4.5\text{V}$	

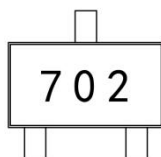
Description and Applications

- Trench LV MOSFET Technology
- ESD Protected
- RoHS Compliant

Ordering Information

Part Number	Package Type	Package Qty
CFS2N7002	SOT-23	3,000/Tape & Reel

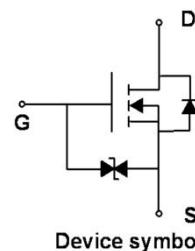
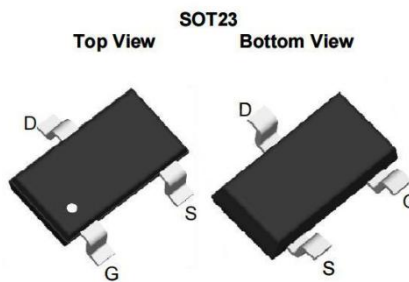
Marking Information



702--Part Number

Green product

Package & Internal Circuit



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

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current - Continuous	$T_C = 25^\circ\text{C}$	I_D	0.34	A
Pulsed Drain Current ^(note 1)		I_{DM}	1.36	A
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	350	mW
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 ^(note 2)	$R_{\theta JA}$		357	°C/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} =0V	60			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} = ±20V			±10	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.0	V
R _{DS(ON)}	Drain-Source on-Resistance	V _{GS} =10V, I _D =0.3A		1300	2100	mΩ
		V _{GS} =4.5V, I _D =0.2A		1400	2800	mΩ
Dynamic Characteristics ^(note 4)						
C _{iss}	Input Capacitance	V _{GS} =0V V _{DS} =30V f=1.0MHz		25		pF
C _{oss}	Output Capacitance			5.6		pF
C _{rss}	Reverse Transfer Capacitance			2.2		pF
Q _g	Total Gate Charge	V _{GS} =4.5V V _{DS} =30V I _D =0.3A		0.3		nC
Q _{gs}	Gate Source Charge			0.15		nC
Q _{gd}	Gate Drain Charge			0.08		nC
t _{D(on)}	Turn-On Delay Time	V _{DS} =30V V _{GS} =10V I _D =0.3A R _G =3Ω		8.5		ns
t _r	Turn-On Rise Time			6		ns
t _{D(off)}	Turn-Off Delay Time			25.8		ns
t _f	Turn-Off Fall Time			9		ns
Drain-Source Body Diode Characteristics						
V _{SD}	Diode Forward Voltage ^(note 3)	I _S = 0.3A,V _{GS} = 0V			1.5	V
I _S	Continuous Source Current				0.34	A

notes:

1. Repetitive rating, pulse width limited by junction temperature $T_J(\text{MAX})=150^{\circ}\text{C}$.
2. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
4. This value is guaranteed by design hence it is not included in the production test

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

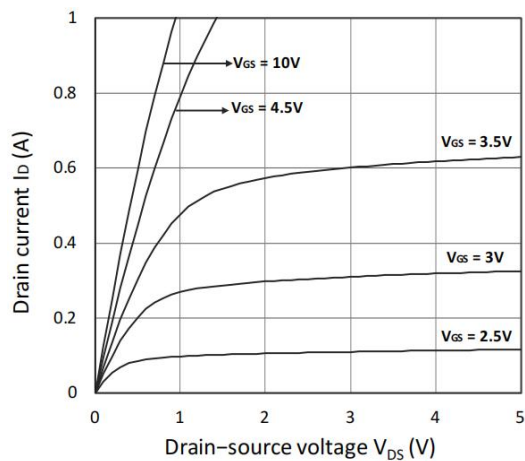


Figure 1: Output Characteristics

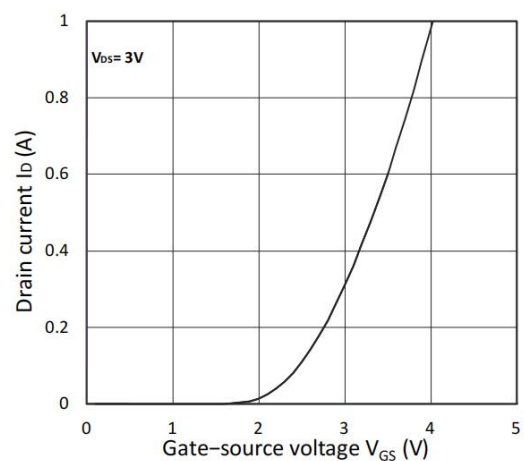


Figure 2: Transfer Characteristics

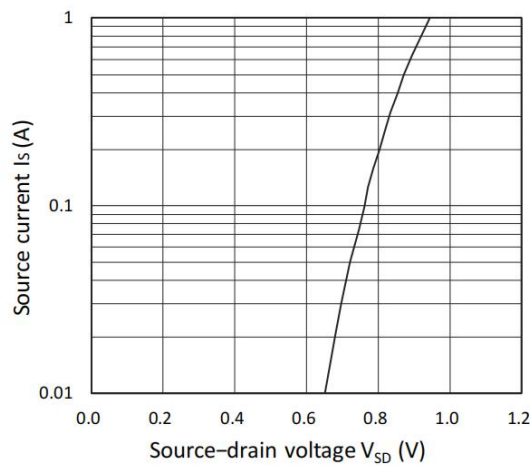


Figure 3: Forward Characteristics of Reverse

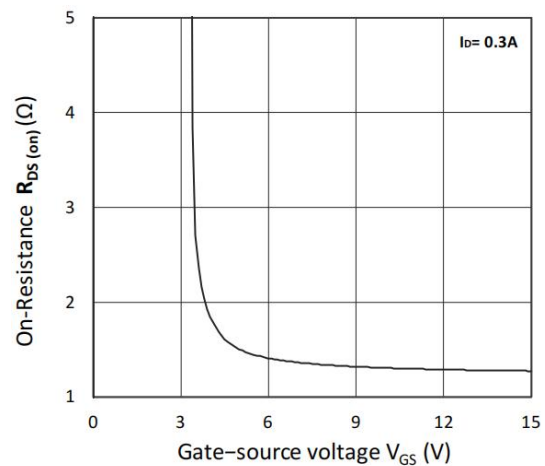


Figure 4: $R_{DS(on)}$ vs. V_{GS}

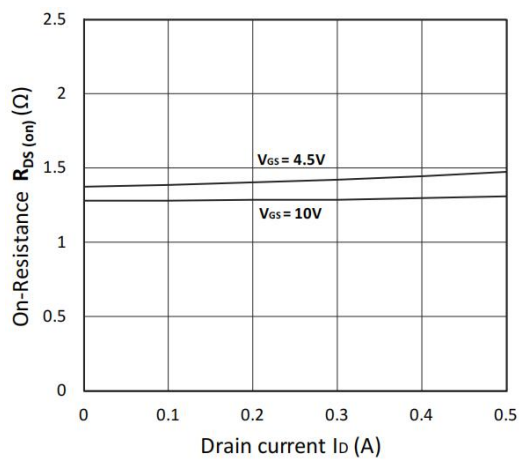


Figure 5: $R_{DS(on)}$ vs. I_D

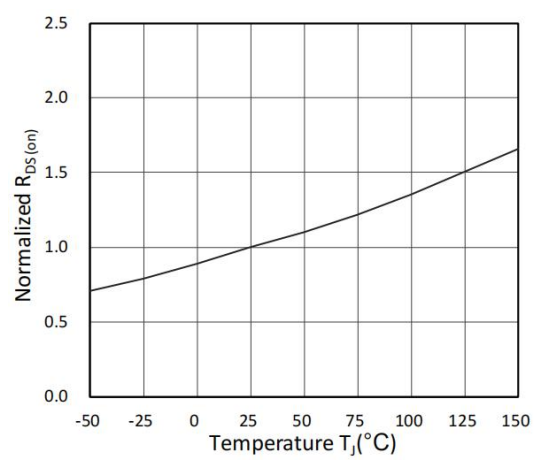


Figure 6: Normalized $R_{DS(on)}$ vs. Temperature

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

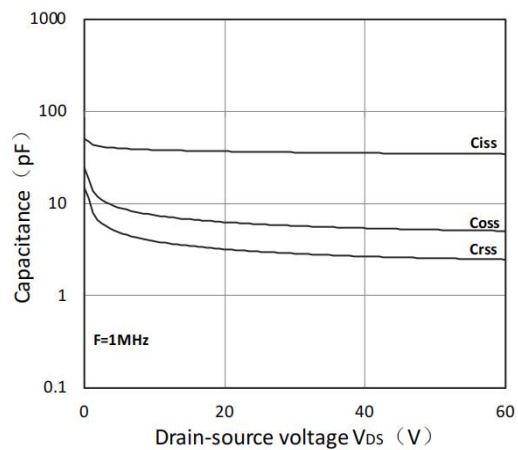


Figure 7: Capacitance Characteristics

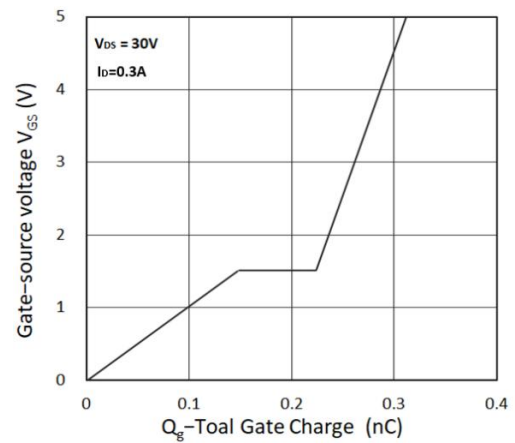
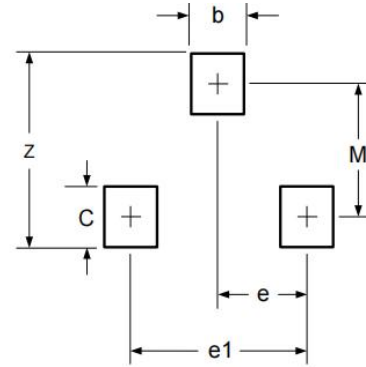
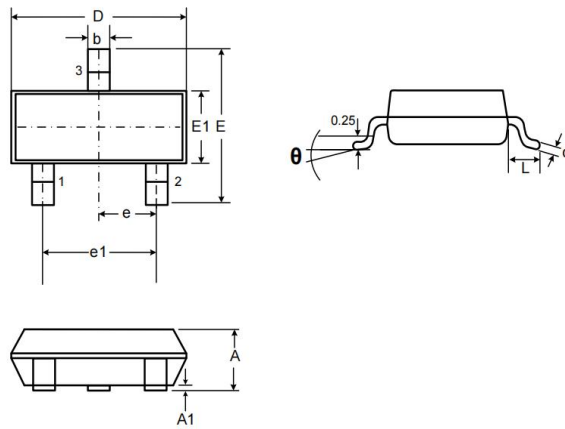


Figure 8: Gate Charge Characteristics

SOT-23 Package Information



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.037BSC	
e1	1.80	2.00	0.071	0.079
L	0.55REF		0.022REF	
θ	0°	8°	0°	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	0.80

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.