CMSC7315

P-Channel Silicon MOSFET

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for use as a load switch or in PWM applications.

Product Summary

BVDSS	RDSON	ID
-150V	330mΩ	-9A

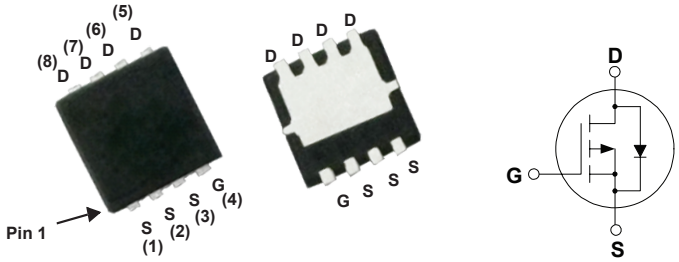
Applications

- Active Clamp Switch
- Load Switch
- Portable equipment and battery powered systems

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

DFN-8 3.3x3.3 Pin Configuration



DFN-8 3.3x3.3

Type	Package	Marking
CMSC7315	DFN-8 3.3x3.3	7315

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-150	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-9	A
I_D@T_C=100℃	Continuous Drain Current	-6.3	A
I_{DM}	Pulsed Drain Current	-27	A
EAS	Single Pulse Avalanche Energy[1]	84.5	mJ
P_D@T_C=25℃	Total Power Dissipation	52	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	---	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	---	2.4	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-5A	---	296	330	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-2	---	-4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-150V, V_{GS}=0V , T_J=25℃	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-5A	---	11	---	S
Q_g	Total Gate Charge	V_{DS}=-75V , I_D=-3A V_{GS}=-4.5V	---	18	---	nC
Q_{gs}	Gate-Source Charge		---	5.5	---	
Q_{gd}	Gate-Drain Charge		---	8.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=-75V, V_{GS}=-10V , R_G=1Ω I_D=-3A , R_L=25Ω	---	15	---	ns
T_r	Rise Time		---	32	---	
$T_{d(off)}$	Turn-Off Delay Time		---	55	---	
T_f	Fall Time		---	40	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	2100	---	pF
C_{oss}	Output Capacitance		---	60	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

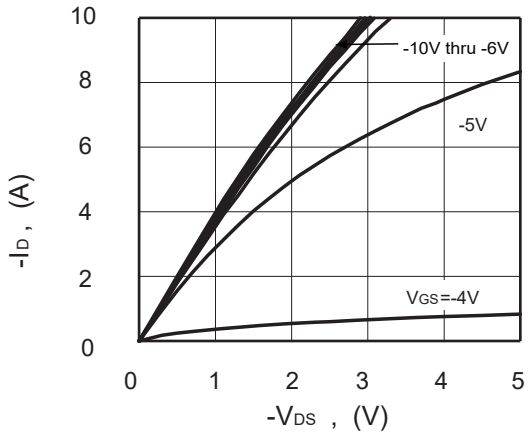
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-9	A
I_{SM}	Pulsed Source Current		---	---	-27	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-9A	---	-0.88	-1.2	V

Notes:

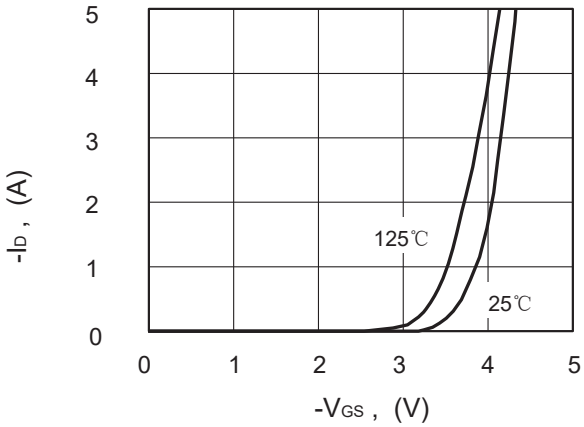
1.The EAS data shows Max. rating .The test condition is V_{DS}=-50V , V_{GS}=-10V , L=1mH , I_{AS}=-13A.

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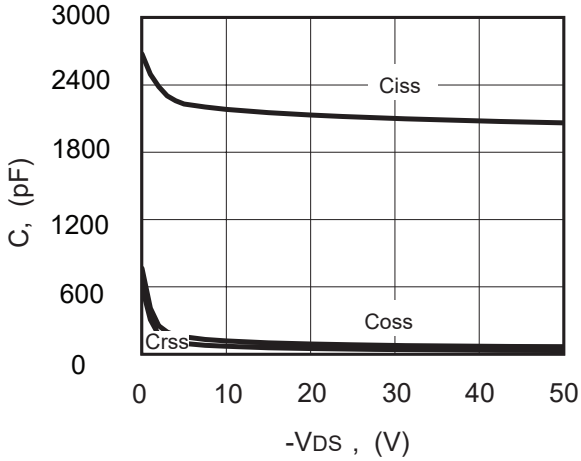
Typical Characteristics



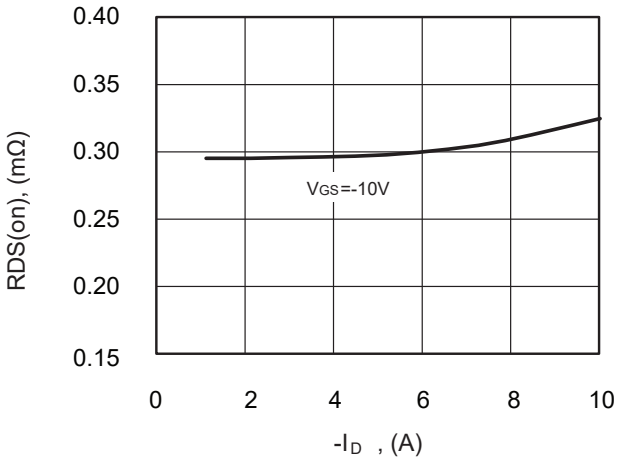
Output Characteristics



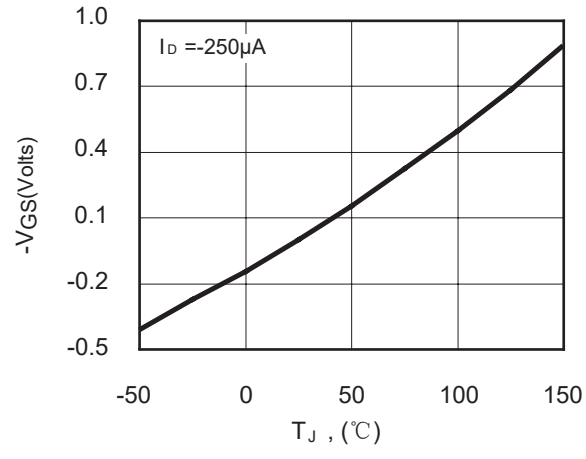
Transfer Characteristics



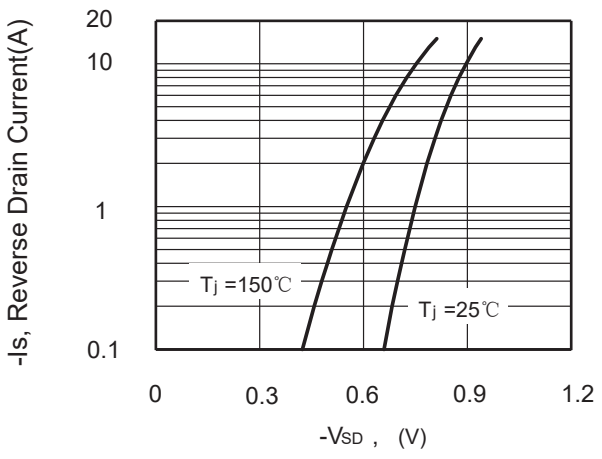
Capacitance Characteristics



On-Resistance v.s. Drain Current



Threshold Voltage



Body-Diode Characteristics