

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.

Features

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

Absolute Maximum Ratings

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

Thermal Data

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

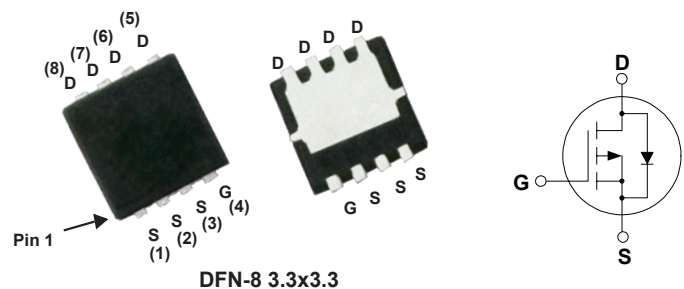
Product Summary

BVDSS	RDSON	ID
-150V	330m Ω	-9A

Applications

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

DFN-8 3.3x3.3 Pin Configuration



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

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-5A$	---	296	330	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-2	---	-4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-150V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	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	$V_{DS}=-75V$, $V_{GS}=-10V$, $R_G=1\Omega$ $I_D=-3A$, $R_L=25\Omega$	---	15	---	ns
T_r	Rise Time		---	32	---	
$T_{d(off)}$	Turn-Off Delay Time		---	55	---	
T_f	Fall Time		---	40	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	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:

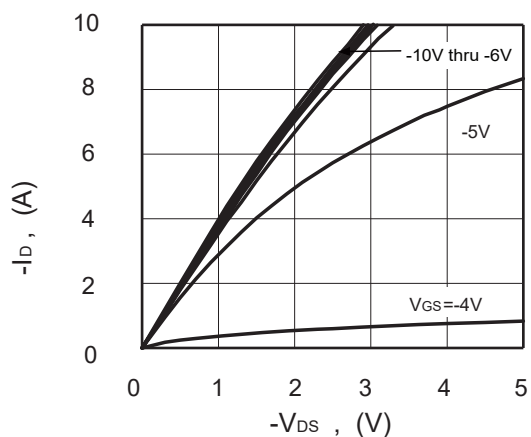
1.The EAS data shows Max. rating .The test condition is $V_{DS}=-50V$, $V_{GS}=-10V$, $L=1mH$, $I_{AS}=-13A$.

This product has been designed and qualified for the consumer market.

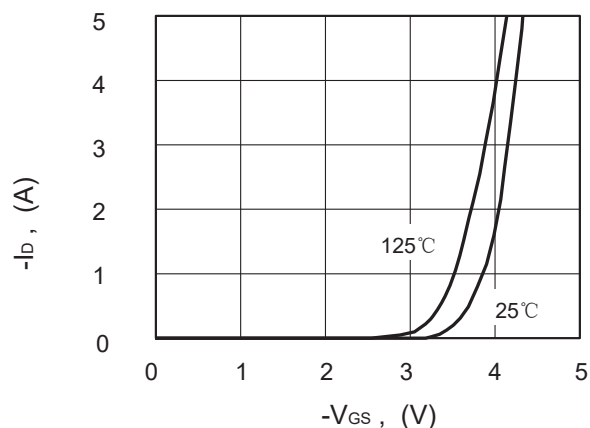
Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

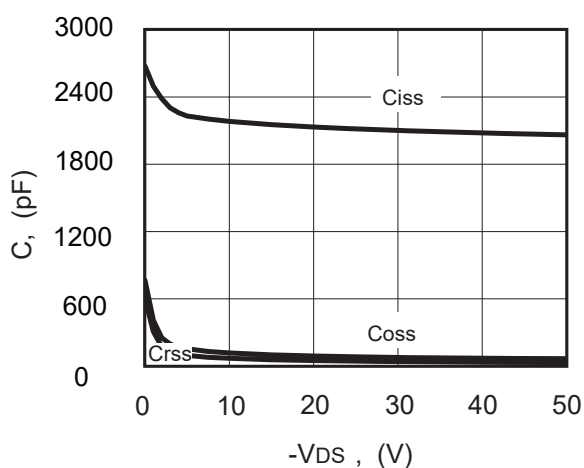
Typical Characteristics



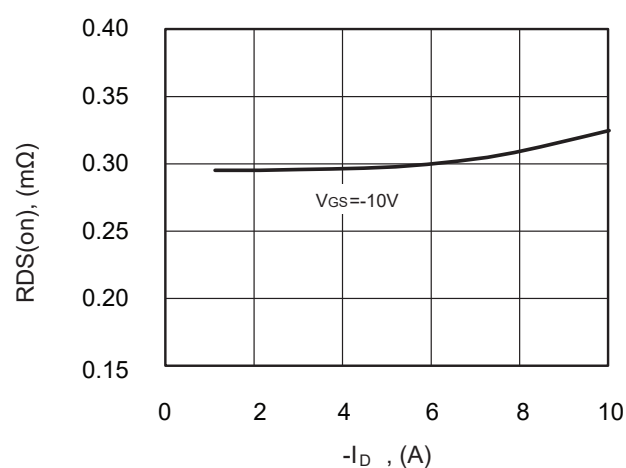
Output Characteristics



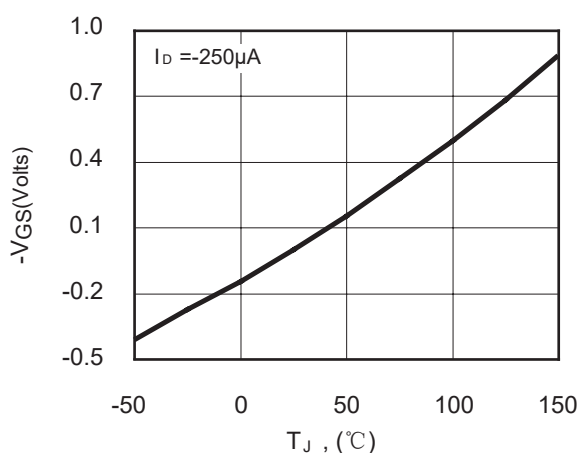
Transfer Characteristics



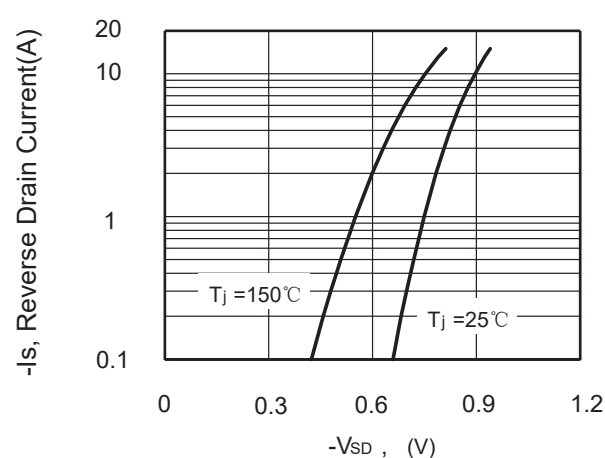
Capacitance Characteristics



On-Resistance v.s. Drain Current



Threshold Voltage



Body-Diode Characteristics