

CMSC4963

-20V, 22mΩ typ., -10A Dual P-Channel MOSFET

General Description

The CMSC4963 uses advanced trench technology to provide excellent RDS(ON). It is a suitable device for most synchronous buck converter applications.

Product Summary

BVDSS	RDS(on) max.	ID
-20V	26mΩ	-10A

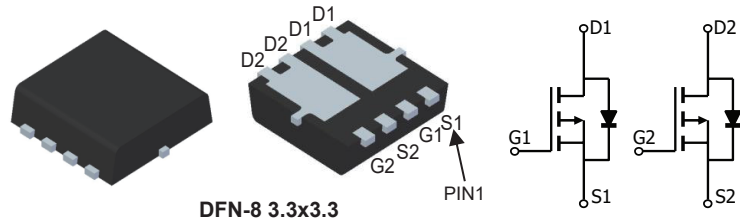
Applications

- DC/DC Conversion
- Load Switches

DFN-8 3.3x3.3 Pin Configuration

Features

- Dual P-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant



Type	Package	Marking
CMSC4963	DFN-8 3.3x3.3	4963

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D @T _C =25°C	Continuous Drain Current	-10	A
I _D @T _C =100°C	Continuous Drain Current	-7	A
I _{DM}	Pulsed Drain Current	-40	A
EAS	Single Pulse Avalanche Energy ¹	24	mJ
P _D @T _C =25°C	Total Power Dissipation	20	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	78	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	6.25	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-3.7A$	---	22	26	mΩ
		$V_{GS}=-2.5V$, $I_D=-2A$	---	27	35	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-0.4	---	-1.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-20V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-2A$	---	9	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	8	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-10V$, $I_D=-7A$ $V_{GS}=-4.5V$ (Note 2)	---	13	---	nC
Q_{gs}	Gate-Source Charge		---	2	---	
Q_{gd}	Gate-Drain Charge		---	3.4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$, $V_{GS}=-4.5V$ $R_L=-1.43\Omega$, $R_{GEN}=3\Omega$ (Note 2)	---	10	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	85	---	
T_f	Fall Time		---	40	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1030	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-10	A
I_{SM}	Pulsed Source Current		---	---	-40	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-5A$, $T_J=25^{\circ}\text{C}$	---	-0.87	-1.2	V

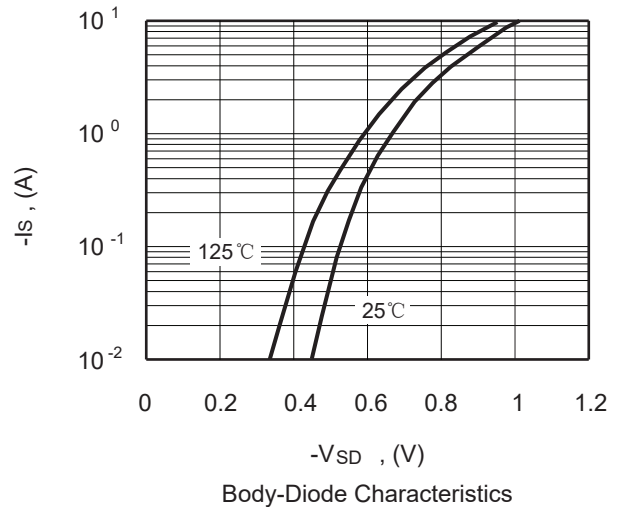
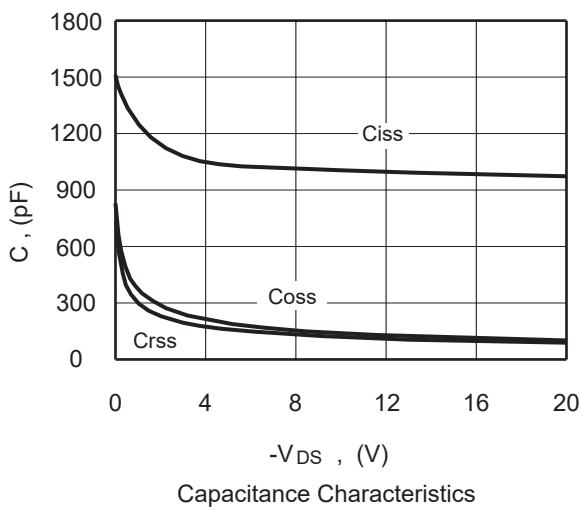
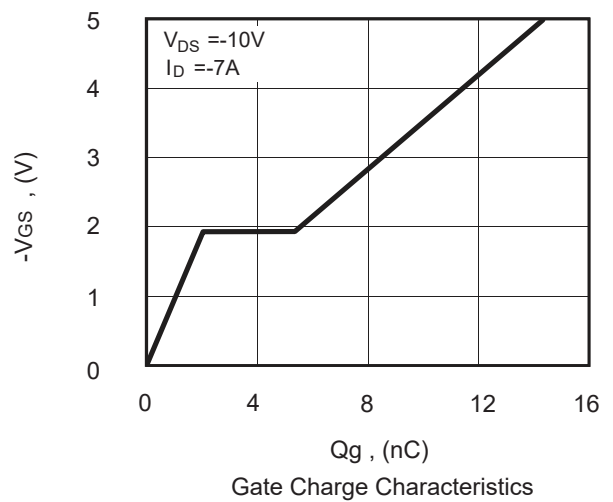
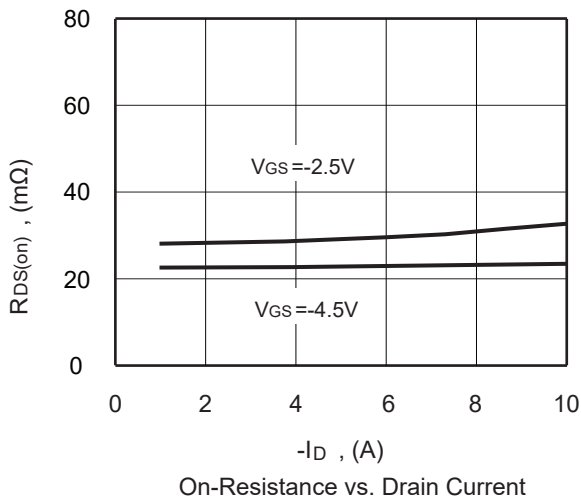
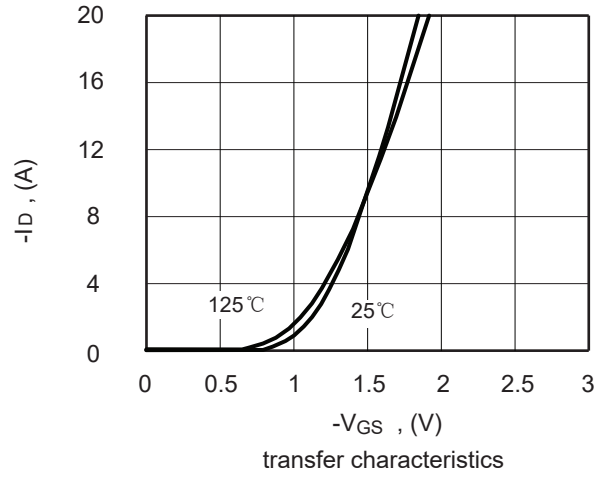
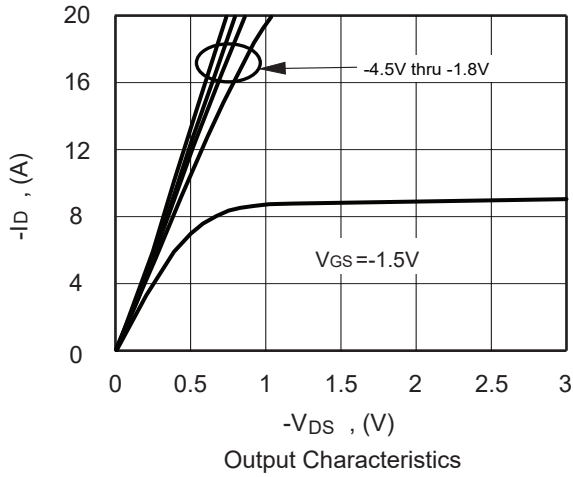
Note :

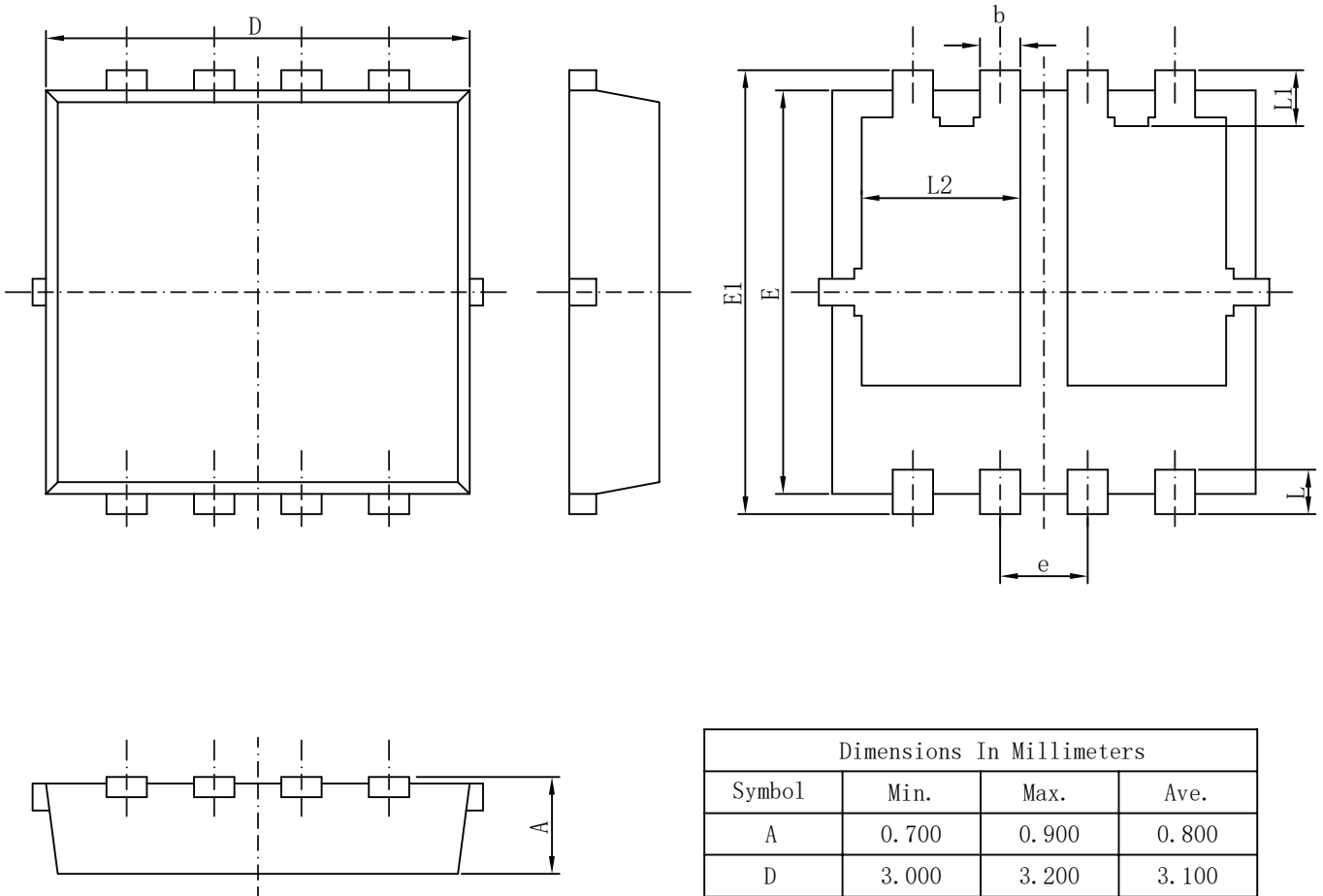
- 1.The EAS data shows Max. rating . The test condition is $V_{DD}=-15V$, $V_{GS}=-10V$, $L=0.3\text{mH}$, $I_{AS}=-12.8A$.
2. Defined by design, not subject to production.

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.Please refer to the latest version of specification.

Typical Characteristics


Package Dimension
DFN-8 3.3X3.3 Dual
Unit :mm

注:

1. 未注公差±0.10
2. 塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
3. 标注单位mm

Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.700	0.900	0.800
D	3.000	3.200	3.100
E	3.000	3.200	3.100
E1	3.200	3.600	3.400
b	0.200	0.400	0.300
e	0.550	0.750	0.650
L	0.300	0.600	0.450
L1	0.395	0.695	0.545
L2	0.885	1.185	1.035