

General Description

The CMSC30DN03 is a high performance trench Dual N-channel MOSFET which utilizes extremely high cell density to provide low $R_{DS(on)}$ and gate charge characteristics. It is ideally suited to support synchronous buck converter applications.

Features

- Low ON-resistance.
- Improved dv/dt capability
- Fast switching
- RoHS Compliant

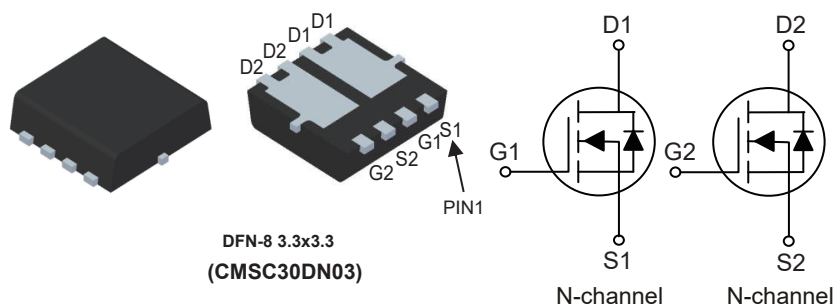
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	16mΩ	27A

Applications

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

DFN-8 3.3x3.3 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	27	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	17	A
I_{DM}	Pulsed Drain Current	81	A
EAS	Single Pulse Avalanche Energy ¹	41	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	25	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	75	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	6	°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	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=6A$	---	13.5	16	mΩ
		$V_{GS}=4.5V$, $I_D=5A$	---	18	24	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$	---	---	1	uA
		$V_{DS}=24V$, $V_{GS}=0V$, $T_J=125^{\circ}\text{C}$	---	---	10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	7	---	S
Q_g	Total Gate Charge	$V_{DS}=15V$, $I_D=15A$ $V_{GS}=4.5V$	---	7	---	nC
Q_{gs}	Gate-Source Charge		---	2.7	---	
Q_{gd}	Gate-Drain Charge		---	3	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=3.3\Omega$ $I_D=15A$	---	10	---	ns
T_r	Rise Time		---	60	---	
$T_{d(off)}$	Turn-Off Delay Time		---	15	---	
T_f	Fall Time		---	13	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	800	---	pF
C_{oss}	Output Capacitance		---	80	---	
C_{rss}	Reverse Transfer Capacitance		---	70	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	27	A
$I_{S,pulse}$	Diode pulse current		---	---	81	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=28A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

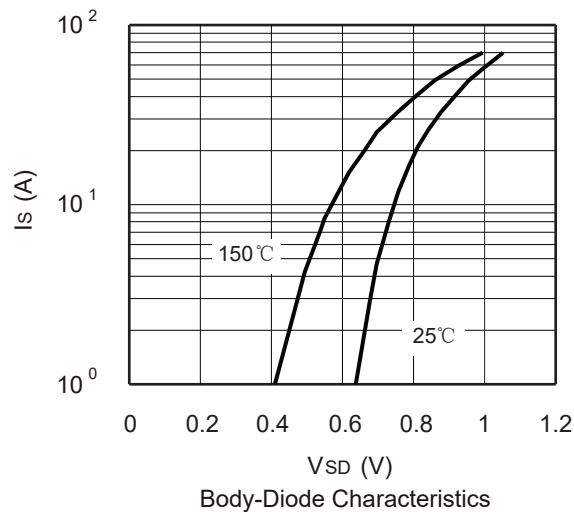
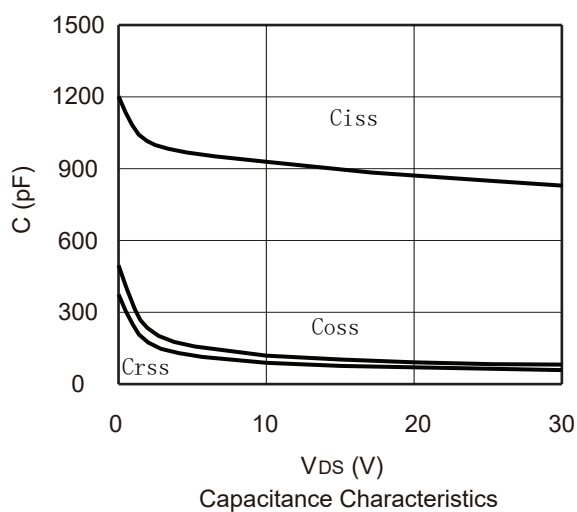
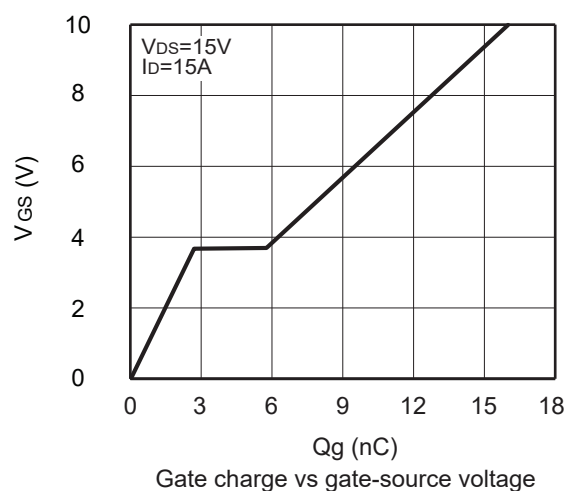
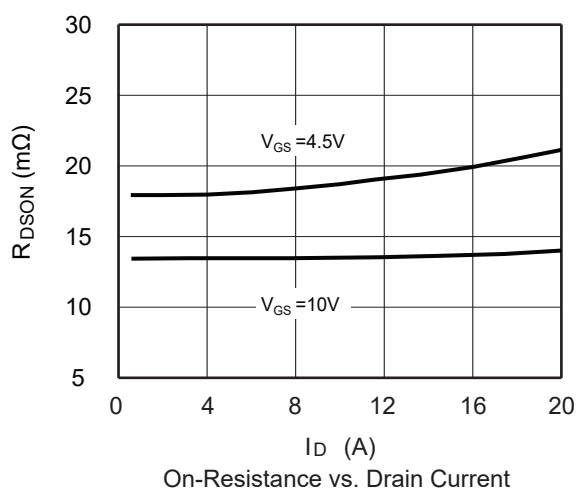
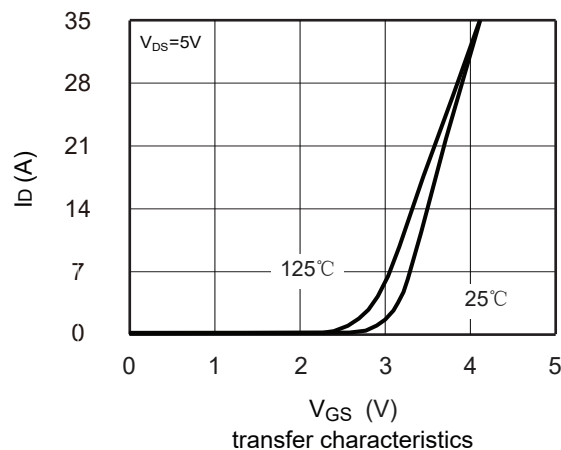
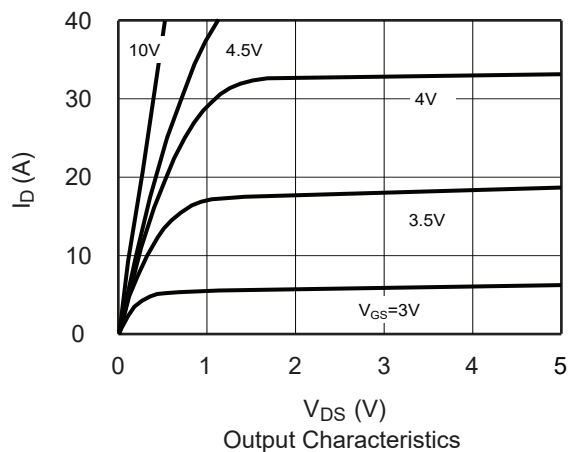
1.The EAS data shows Max. rating .The test condition is $V_{DS}=25V$, $V_{GS}=10V$, $L=0.3\text{mH}$, $I_{AS}=16.6A$.

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.

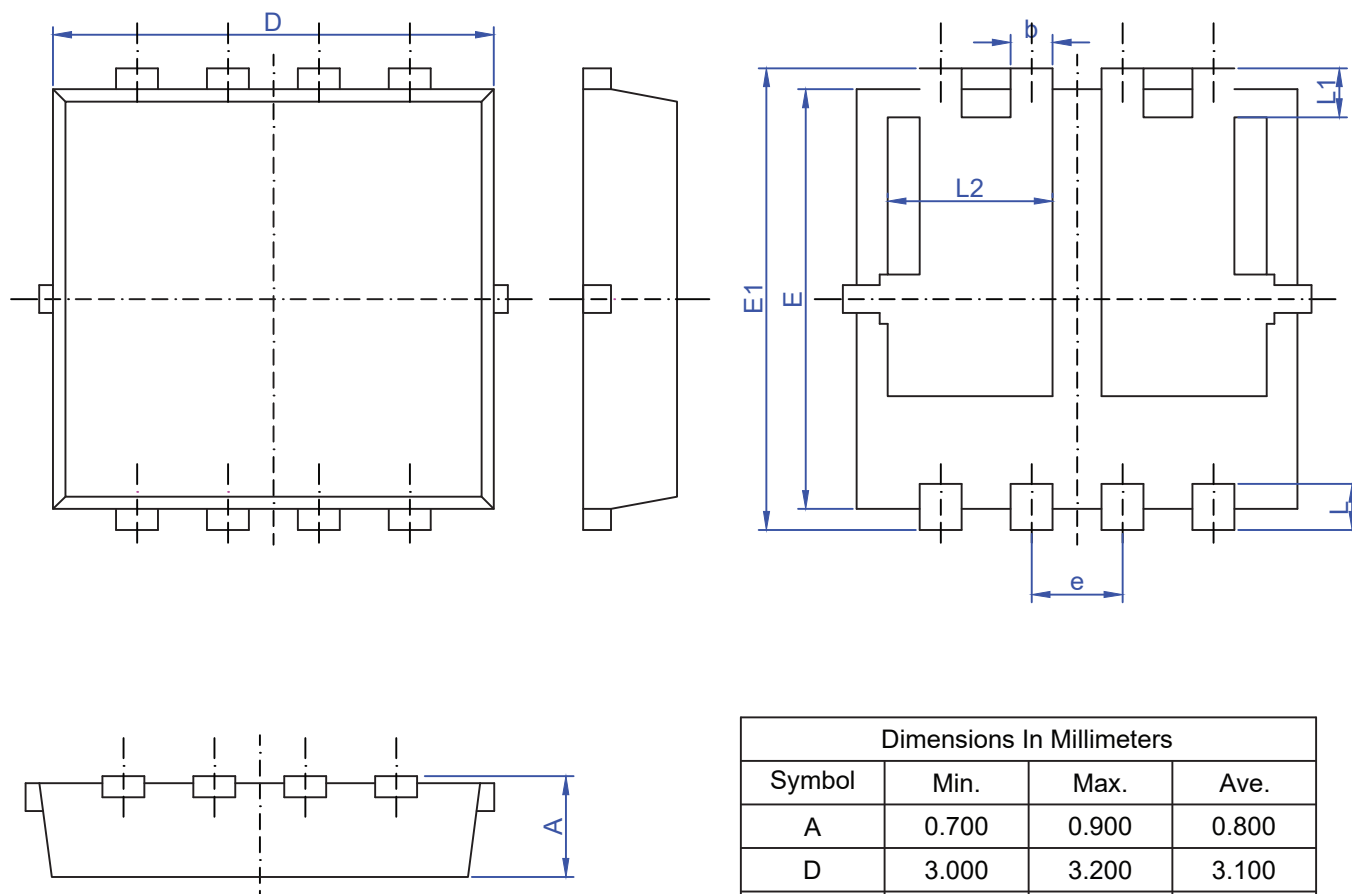
Typical Characteristics



Package Dimension

DFN-8 3.3X3.3 Dual

Unit :mm



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	0.250	0.650	0.450
L1	0.255	0.655	0.455
L2	0.935	1.135	1.035

Note:

1. No tolerance ± 0.10
2. The plastic package has no defects such as defects, shrinkage holes, cracks, bubbles, etc.
3. Marking unit mm