CMSC30DN03

Dual N-Channel Enhancement Mode MOSFET

General Description

The CMSC30DN03 is a high performance trench Dual N-channel MOSFE T which uilizes extremely high cell density to provide low Rdson and gate charge characteristics. It is ideally suited to support synchronous buck converter applications.

Product Summary

BVDSS	RDSON	ID
30V	16mΩ	27A

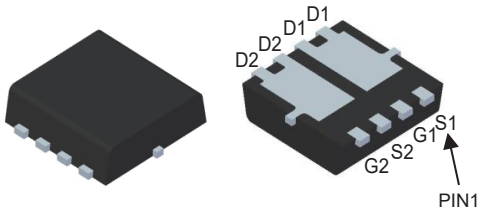
Applications

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

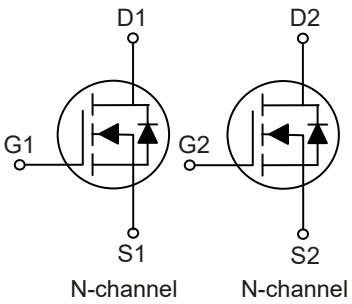
Features

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

DFN-8 3.3x3.3 Pin Configuration



DFN-8 3.3x3.3
(CMSC30DN03)



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℃	Continuous Drain Current	27	A
I_D@T_C=100℃	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℃	Total Power Dissipation	25	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-ambient	---	75	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	6	℃/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	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 = 250μA	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℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V	---	---	±100	nA
gfs	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=3.3Ω 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=1MHz	---	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 , Tj=25℃	---	---	1.2	V

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