CMSA012N10A

N-Channel Enhancement Mode Field Effect Transistor

General Description

The CMSA012N10A uses advanced trench technology to provide excellent RDS (ON), low gate charge and minimize the loss of power conversion applications. This device is suitable to be used as the low side FET in SMPS, load switching and general purpose.

Features

- Low On-Resistance
- 100% avalanche tested
- Conduction losses reduced
- RoHS Compliant

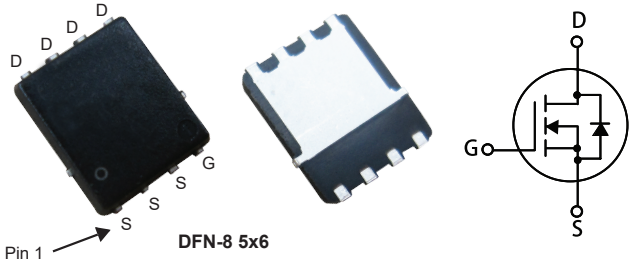
Product Summary

BVDSS	RDSON	ID
100V	10mΩ	50A

Applications

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

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA012N10A	DFN-8 5x6	CMSA012N10A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	50	A
I_D@T_C=100℃	Continuous Drain Current	35	A
EAS	Single Pulse Avalanche Energy[1]	56	mJ
I_{DM}	Pulsed Drain Current	150	A
P_D@T_C=25℃	Total Power Dissipation	75	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	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.66	℃/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	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=20A	---	---	10	mΩ
		V_{GS}=4.5V , I_D=15A	---	---	13.5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	1.0	---	3.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=100V ,V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V, V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	25	---	S
Q_g	Total Gate Charge	V_{DS}=50V , I_D=20A V_{GS}=10V	---	24	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	3	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=50V , V_{GS}=10V , R_L=2.5Ω R_{GEN} =3Ω	---	8	---	ns
T_r	Rise Time		---	2	---	
$T_{d(off)}$	Turn-Off Delay Time		---	22	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1900	---	pF
C_{oss}	Output Capacitance		---	850	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	50	A
I_{SM}	Pulsed Source Current		---	---	150	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=28A , Tj=25℃	---	---	1.2	V

Note:

1.The EAS data shows Max. rating . The test condition is V_{DD}=30V , V_{GS}=10V , L=0.5mH , I_{AS}=15A

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