CMSA8059

N-Channel Enhancement Mode Field Effect Transistor

General Description

The CMSA8059 uses advanced trench technology to provide excellent RDS (ON), low gate charge and minimize the loss of power conversion applications.

Product Summary

BVDSS	RDSON	ID
30V	4mΩ	80A

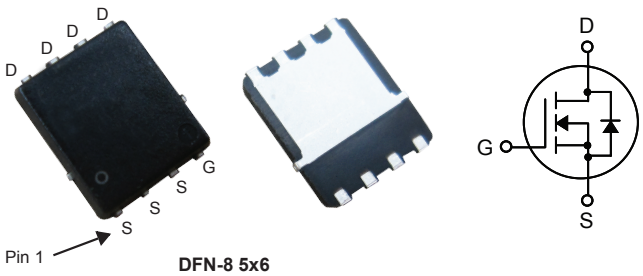
Applications

- DC/DC Converters in Computing
- Isolated DC/DC Converters in Telecom and Industrial

Features

- RDS(ON)<4.0mΩ @ VGS=10V
- 100% avalanche tested
- High Current Capability
- RoHS and Halogen-Free Compliant

DFN-8 5x6 Pin Configuration



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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	80	A
I_{DM}	Pulsed Drain Current	240	A
EAS	Single Pulse Avalanche Energy	170	mJ
P_D@T_C=25℃	Total Power Dissipation	45	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	---	45	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.77	℃/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=30A	---	3.5	4	mΩ
		V_{GS}=4.5V , I_D=15A	---	5.5	6	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=24V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V, V_{DS}=0V	---	---	±100	nA
Q_g	Total Gate Charge	V_{DD}≈24V , I_D=32A V_{GS}=10 V	---	40	---	nC
Q_{gs}	Gate-Source Charge		---	9	---	
Q_{gd}	Gate-Drain Charge		---	4.8	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}≈15V , R_L=0.94Ω, I_D=16A V_{GS}=0 to10V	---	10	---	ns
T_r	Rise Time		---	3.3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	42	---	
T_f	Fall Time		---	6.5	---	
C_{iss}	Input Capacitance	V_{DS}=10V , V_{GS}=0V , f=1MHz	---	3100	---	pF
C_{oss}	Output Capacitance		---	530	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	80	A
$I_{S,pulse}$	Diode pulse current		---	---	240	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=25A , Tj=25℃	---	---	1.2	V

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