

General Description

The CMSA75N06 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

- RDS(ON)<15mΩ @ VGS=10V
- 100% avalanche tested
- Conduction losses reduced
- Switching losses reduced

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	55	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	30	A
EAS	Single Pulse Avalanche Energy ¹	264	mJ
I _{DM}	Pulsed Drain Current	90	A
P _D @T _C =25°C	Total Power Dissipation	40	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-to-Ambient	---	52	°C/W
R _{θJC}	Thermal Resistance Junction -Case	---	3.13	°C/W

Product Summary

BVDSS	R _{DS(on)} max.	ID
55V	15mΩ	30A

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
CMSA75N06	DFN-8 5*6	CMSA75N06

N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	55	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=10A$	---	---	15	m Ω
		$V_{GS}=4.5V, I_D=10A$	---	---	17	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=55V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V, I_D=20A$	---	40	---	S
Q_g	Total Gate Charge	$V_{DS}=30V, I_D=20A$ $V_{GS}=10V$	---	20	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	3	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V, V_{GS}=10V, R_L=1.5\Omega$ $R_{GEN}=3\Omega$	---	5	---	ns
T_r	Rise Time		---	3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	20	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	5500	---	pF
C_{oss}	Output Capacitance		---	250	---	
C_{rss}	Reverse Transfer Capacitance		---	170	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V, \text{Force Current}$	---	---	30	A
$I_{S,pulse}$	Diode pulse current		---	---	90	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}\text{C}$	---	---	1	V

Note:

1.The EAS data shows Max. rating . The test condition is $V_{DD}=30V \cdot V_{GS}=10V \cdot t_L=1mH \cdot t_{AS}=23A$.

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