

General Description

The CMSA4006 uses advanced technology to provide excellent $R_{DS(ON)}$. This device is suitable to be used as the low side FET in SMPS, load switching and general purpose.

Features

- Fast switching
- Lower On-resistance
- 100% avalanche tested
- RoHS Compliant

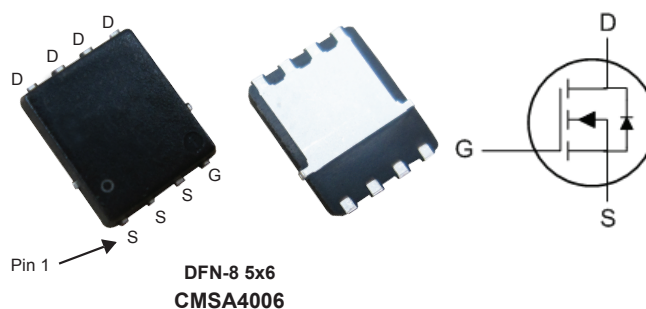
Product Summary

BVDSS	RDSON	ID
40V	6mΩ	70A

Applications

- Load Switch
- Networking DC-DC Power System
- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA

DFN-8 5x6 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current	210	A
EAS	Single Pulse Avalanche Energy ¹	455	mJ
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	60	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	---	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.1	$^\circ\text{C/W}$

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	$V_{GS}=0V$, $I_D=250\mu A$	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	---	6	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=32V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=10A$	---	30	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.5	---	Ω
Q_g	Total Gate Charge	$V_{DD}=20V$, $I_D=12A$ $V_{GS}=0$ to $4.5V$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	8.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=3.3\Omega$ $I_D=1A$	---	15	---	ns
T_r	Rise Time		---	3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	70	---	
T_f	Fall Time		---	8	---	
C_{iss}	Input Capacitance	$V_{DS}=15V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2400	---	pF
C_{oss}	Output Capacitance		---	200	---	
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	---	---	70	A
$I_{S,pulse}$	Diode pulse current		---	---	210	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=3A$, $T_J=25^{\circ}\text{C}$	---	---	1	V

Notes

1. The test condition is $V_{DS}=40V$, $V_{GS}=10V$, $L=5mH$, $I_D=13.5A$.

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Cmos assumes no liability for customers' product design or applications.
Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics

