

N-Channel Enhancement Mode Field Effect Transistor

General Description

The CMSA5020 uses advanced technology to provide excellent RDS (ON) . This device is suitable to be used as the low side FET in SMPS, load switching and general purpose.

Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	25	A
I_{DM}	Pulsed Drain Current	75	A
EAS	Single Pulse Avalanche Energy ¹	680	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	90	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
$R_{\theta JA}$	Junction-to-Ambient ($t \leq 10\text{S}$)	---	23	$^\circ\text{C/W}$
$R_{\theta JC}$	Junction-to-Case (Steady State)	---	1.5	$^\circ\text{C/W}$

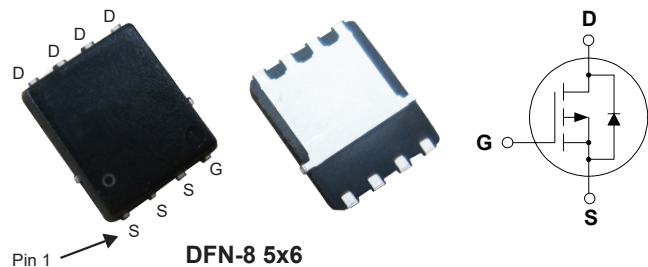
Product Summary

BVDSS	RDSON	ID
200V	65m Ω	25A

Applications

- Load Switch
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA5020	DFN-8 5*6	CMSA5020

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	60	65	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=200V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	19	---	S
R_g	Gate Resistance	$V_{DS}=10V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=100V$, $I_D=5.9A$ $V_{GS}=6V$	---	35	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	16	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=100V$, $R_G=1\Omega$, $R_L=20.8\Omega$ $I_D=4.8A$, $V_{GEN}=10V$	---	15	---	ns
T_r	Rise Time		---	11	---	
$T_{d(off)}$	Turn-Off Delay Time		---	26	---	
T_f	Fall Time		---	9	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2800	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	105	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	25	A
I_{SM}	Pulsed Source Current		---	---	75	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=28A$	---	---	1.2	V

Note :

1.The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=5mH$, $I_{AS}=16.5A$

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