

General Description

The CMSA1402 uses advanced process technology and design to provide excellent RDS(ON).

This device is suitable for use as a Battery protection or in other Switching application.

Features

- Low On-Resistance
- 100% avalanche tested
- Simple Drive Requirements
- Surface Mount Package
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	35	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy ¹	115	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	50	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-ambient	---	60	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.5	$^\circ\text{C}/\text{W}$

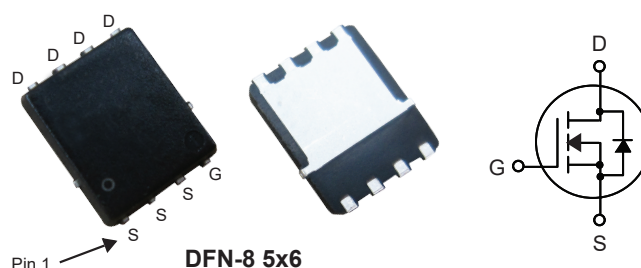
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
20V	4.3mΩ	50A

Applications

- DC/DC Converters in Computing, Servers, and POL
- Battery protection switch

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA1402	DFN-8 5x6	CMSA1402

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	3.7	4.3	mΩ
		$V_{GS}= 4.5V$, $I_D=20A$	---	4.1	5	
		$V_{GS}= 2.5V$, $I_D=10A$	---	5.4	7	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = 250\mu A$	0.5	---	1.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=20V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 12V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=30A$	---	42	---	S
Q_g	Total Gate Charge	$V_{DD}=10V$, $I_D=20A$ $V_{GS}=4.5V$	---	31	---	nC
Q_{gs}	Gate-Source Charge		---	5.2	---	
Q_{gd}	Gate-Drain Charge		---	8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=10V$, $V_{GS}=10V$, $R_{GEN}=3\Omega$ $R_L = 0.5\Omega$	---	8	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	72	---	
T_f	Fall Time		---	21	---	
C_{iss}	Input Capacitance	$V_{DS}= 20V$, $V_{GS}=0V$, $f=1MHz$	---	2200	---	pF
C_{oss}	Output Capacitance		---	310	---	
C_{rss}	Reverse Transfer Capacitance		---	250	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	50	A
$I_{S,pulse}$	Diode pulse current		---	---	200	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=20A$, $T_J=25^{\circ}\text{C}$	---	0.85	1.2	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=20V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=21.5A$

This product has been designed and qualified for the consumer market.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics

