

CMSA7418A

30V, 1.7mΩ typ., 100A N-Channel MOSFET

General Description

The CMSA7418A uses advanced SGT technology to provide excellent RDS(ON). This device is ideal for high-frequency switching and synchronous rectification.

Features

- Low ON-resistance
- 100% EAS Guaranteed
- Surface Mount Package
- RoHS Compliant

Product Summary

BVDSS	RDS(on) max.	ID
30V	1.9mΩ	100A

Applications

- DC/DC Converters in Computing, Servers, and POL

DFN-8 5x6 Pin Configuration



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°C	Continuous Drain Current	100	A
I _D @T _C =100°C	Continuous Drain Current	70	A
I _{DM}	Pulsed Drain Current	300	A
EAS	Single Pulse Avalanche Energy ¹	338	mJ
P _D @T _C =25°C	Total Power Dissipation	90	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-ambient(Device on PCB)	---	60	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.39	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	1.7	1.9	mΩ
		$V_{GS}=4.5V$, $I_D=20A$	---	2.2	3	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = 250\mu A$	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V$, $V_{GS}=0V$	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	46	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=15V$, $I_D=30A$ $V_{GS}=0$ to $4.5V$	---	22	---	nC
Q_{gs}	Gate-Source Charge		---	7	---	
Q_{gd}	Gate-Drain Charge		---	6.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=1.6\Omega$ $I_D=30A$	---	6	---	ns
T_r	Rise Time		---	8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	5	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2600	---	pF
C_{oss}	Output Capacitance		---	650	---	
C_{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	100	A
$I_{S,pulse}$	Diode pulse current		---	---	300	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.79	1.2	V

Notes:

1.The EAS data shows Max. rating .The test condition is $V_{DS}=20V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=26A$.

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Typical Characteristics

