

General Description

The CMSA030N04 uses advanced technology to provide excellent RDS (ON) . This device is ideal for high-frequency switching and synchronous rectification.

Features

- SGT Technology
- 100% avalanche tested
- Low On-Resistance
- RoHS Compliant

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	100	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	225	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	70	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 ²	---	50	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.78	$^\circ\text{C/W}$

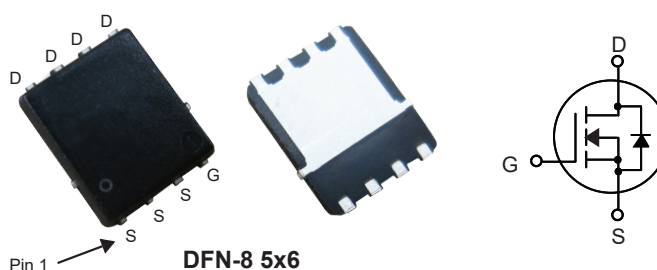
Product Summary

BVDSS	RDS(ON)	ID
40V	3m Ω	100A

Applications

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA030N04	DFN-8 5x6	CMSA030N04

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	$V_{GS}=10V$, $I_D=15A$	---	2.6	3	m Ω
		$V_{GS}=4.5V$, $I_D=10A$	---	3.6	4.6	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=40V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=10A$	---	25	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=20V$, $I_D=50A$ $V_{GS}=0$ to $10V$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V$, $V_{GS}=10V$, $I_D=50A$ $R_{GEN}=1.6\Omega$	---	4	---	ns
T_r	Rise Time		---	4	---	
$T_{d(off)}$	Turn-Off Delay Time		---	19	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	1800	---	pF
C_{oss}	Output Capacitance		---	400	---	
C_{rss}	Reverse Transfer Capacitance		---	25	---	

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		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=10A$, $T_J=25^{\circ}\text{C}$	---	0.78	1.2	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=25V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=30A$.

2.Device on 40mmx40mmx1.5mm epoxy PCB FR4 with 6cm² (one layer, 70 μ m thick) copper area for drain connection. PCB is vertical in still air.

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

Cmos assumes no liability for customers' product design or applications.

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

N-Channel Enhancement Mode Field Effect Transistor

Typical Characteristics

