

General Description

The CMSC055N04 uses advanced SGT technology to provide excellent RDS(ON). This device is suitable for use as a Battery protection or in other Switching application.

Features

- Fast switching
- Lower On-resistance
- 100% avalanche tested
- 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	60	A
$I_D@T_C=70^\circ\text{C}$	Continuous Drain Current	42	A
I_{DM}	Pulsed Drain Current	240	A
EAS	Single Pulse Avalanche Energy ¹	81	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	40	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	---	25	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case ²	---	3.1	$^\circ\text{C/W}$

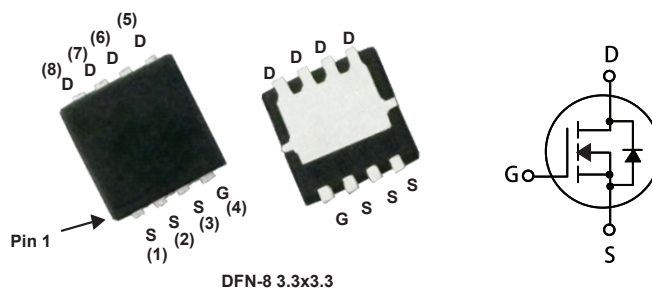
Product Summary

BVDSS	RDSON	ID
40V	5.5m Ω	60A

Applications

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

DFN-8 3.3x3.3 Pin Configuration



Type	Package	Marking
CMSC055N04	DFN-8 3.3x3.3	055N04

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	$V_{GS}=10V$, $I_D=28A$	---	5	5.5	m Ω
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5V$, $I_D=25A$	---	7.5	8.3	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	$V_{DS}=10V$, $I_D=20A$	---	9	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.6	---	Ω
Q_g	Total Gate Charge	$V_{DD}=20V$, $I_D=12A$ $V_{GS}=4.5V$	---	10	---	nC
Q_{gs}	Gate-Source Charge		---	3.5	---	
Q_{gd}	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=3.3\Omega$ $I_D=1A$	---	5	---	ns
T_r	Rise Time		---	9	---	
$T_{d(off)}$	Turn-Off Delay Time		---	25	---	
T_f	Fall Time		---	15	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1000	---	pF
C_{oss}	Output Capacitance		---	270	---	
C_{rss}	Reverse Transfer Capacitance		---	16	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	80	A
$I_{S,pulse}$	Diode pulse current		---	---	320	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=28A$, $T_J=25^{\circ}\text{C}$	---	0.89	1.2	V

Notes:

1.The EAS data shows Max. rating .The test condition is $V_{DS}=25V$, $V_{GS}=10V$, $L=0.5\text{mH}$, $I_{AS}=18A$.2.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

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

