

CMSC7240B

40V, 5.3mΩ typ., 40A N-Channel MOSFET

General Description

Advanced Power MOSFETs from Cmos provide the designer with the best combination of fast switching and low on-resistance. This device is well suited for Power Management and load switching applications common in Notebook Computers and Portable Battery Packs.

Features

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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	40	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	28	A
I_{DM}	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy ¹	189	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	38	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	40	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	3.29	°C/W

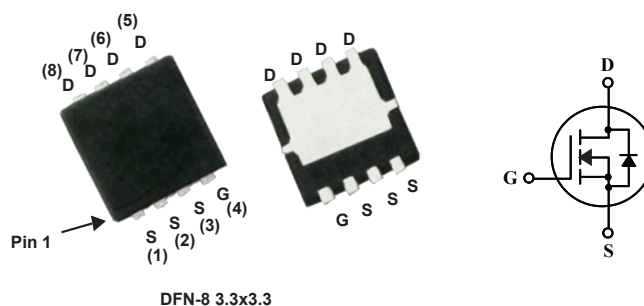
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
40V	6.5mΩ	40A

Applications

- High side in DC - DC Buck Converters
- Notebook battery power management
- Load switch in Notebook

DFN-8 3.3x3.3 Pin Configuration



Type	Package	Marking
CMSC7240B	DFN-8 3.3x3.3	7240B

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	$V_{GS}=10V$, $I_D=20A$	---	5.3	6.5	mΩ
		$V_{GS}=4.5V$, $I_D=15A$	---	11	14	
$V_{GS(th)}$	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	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=10A$	---	10	---	S
Q_g	Total Gate Charge	$V_{DS}=20V$, $I_D=20A$ $V_{GS}=10V$	---	32	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V$, $V_{GS}=10V$, $R_{GEN}=3\Omega$ $R_L=1\Omega$	---	12	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	3000	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	185	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	40	A
$I_{S,pulse}$	Diode pulse current		---	---	120	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=20A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Notes:

1.The EAS data shows Max. rating . The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=0.5mH$, $I_{AS}=-27.5A$

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.