

N-Channel Enhancement Mode MOSFET

General Description

The CMSC6354 uses advanced process technology and design to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.

Features

- N-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant

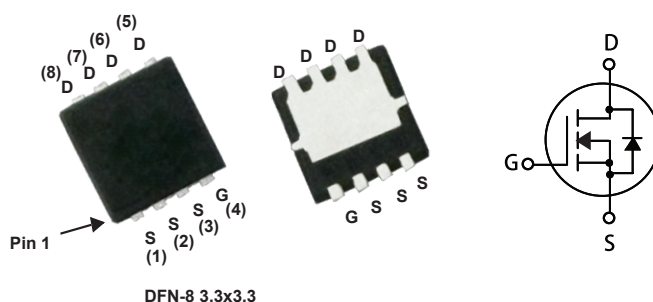
Product Summary

BVDSS	RDSON	ID
30V	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
CMSC6354	DFN-8 3.3*3.3	6354

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current	40	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current	32	A
I_{DM}	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy ¹	132	mJ
$P_D @ T_C = 25^\circ\text{C}$	Total Power Dissipation	25	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(Steady-State)	---	55	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case(Steady-State)	---	5	$^\circ\text{C/W}$

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	$V_{GS}=10V$, $I_D=20A$	---	4.1	5	$m\Omega$
		$V_{GS}=4.5V$, $I_D=20A$	---	9	13	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	19	---	S
Q_g	Total Gate Charge	$V_{DS}=15V$, $I_D=20A$ $V_{GS}=10V$	---	17	---	nC
Q_{gs}	Gate-Source Charge		---	3.6	---	
Q_{gd}	Gate-Drain Charge		---	2.2	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=3\Omega$ $R_L=0.75\Omega$	---	6	---	ns
T_r	Rise Time		---	3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	22	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	1300	---	pF
C_{oss}	Output Capacitance		---	310	---	
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	---	---	40	A
$I_{S,pulse}$	Diode pulse current		---	---	120	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=20A$, $T_J=25^{\circ}\text{C}$	---	0.86	1.2	V

Notes:

1.The EAS data shows Max. rating . The test condition is $V_{DD}=25V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=23A$

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.

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Typical Characteristics

