

N-Channel Enhancement Mode 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

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

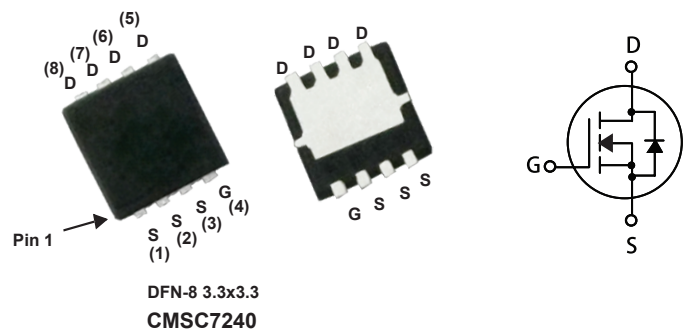
Product Summary

BVDSS	RDSON	ID
40V	9mΩ	40A

Applications

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

DFN-8 3.3x3.3 Pin Configuration



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_{DM}	Pulsed Drain Current	120	A
$P_D@T_C=25^\circ C$	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-to-Ambient	---	40	°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	$V_{GS}=0V, I_D=250\mu A$	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	---	6.5	9	m Ω
		$V_{GS}=4.5V, I_D=15A$	---	---	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	$V_{DS}=32V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=10A$	---	14	---	S
Q_g	Total Gate Charge	$V_{DS}=20V, I_D=20A$ $V_{GS}=10V$	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V, V_{GS}=10V, R_{GEN}=3\Omega$ $R_L=1\Omega$	---	8	---	ns
T_r	Rise Time		---	3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	25	---	
T_f	Fall Time		---	4	---	
C_{iss}	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1MHz$	---	2300	---	pF
C_{oss}	Output Capacitance		---	230	---	
C_{rss}	Reverse Transfer Capacitance		---	190	---	

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

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Typical Characteristics

