

General Description

The CMSC7418A is designed to provide a high efficiency synchronous buck power stage with optimal layout and board space utilization. This device is well suited for use in compact DC/DC converter applications.

Features

- Low ON-resistance
- 100% EAS Guaranteed
- Surface Mount Package
- RoHS Compliant

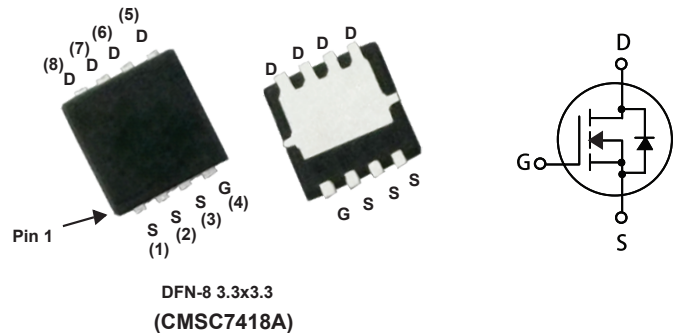
Product Summary

BVDSS	RDSON	ID
30V	1.9mΩ	50A

Applications

- Load switch, battery switch in portable devices

DFN-8 3.3x3 .3 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	39	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy ¹	420	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	83	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(Device on PCB)	---	60	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.8	$^\circ C/W$

Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =30A	---	1.5	1.9	mΩ
		V _{GS} =4.5V , I _D =20A	---	2.3	3	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D = 250μA	0.7	---	1.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =24V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =20A	---	53	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	3	---	Ω
Q _g	Total Gate Charge	V _{DD} =15V , I _D =30A V _{GS} =0 to 4.5V	---	22	---	nC
Q _{gs}	Gate-Source Charge		---	7	---	
Q _{gd}	Gate-Drain Charge		---	6.5	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =15V , V _{GS} =10V , R _G =1.6Ω I _D =30A	---	6	---	ns
T _r	Rise Time		---	8	---	
T _{d(off)}	Turn-Off Delay Time		---	30	---	
T _f	Fall Time		---	5	---	
C _{iss}	Input Capacitance	V _{DS} = 15V , V _{GS} =0V , f=1MHz	---	2400	---	pF
C _{oss}	Output Capacitance		---	1100	---	
C _{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

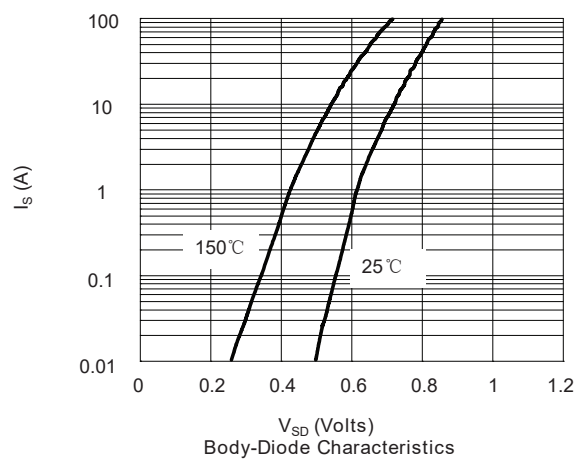
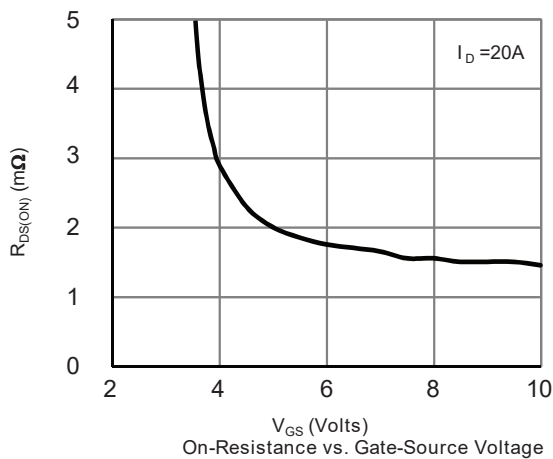
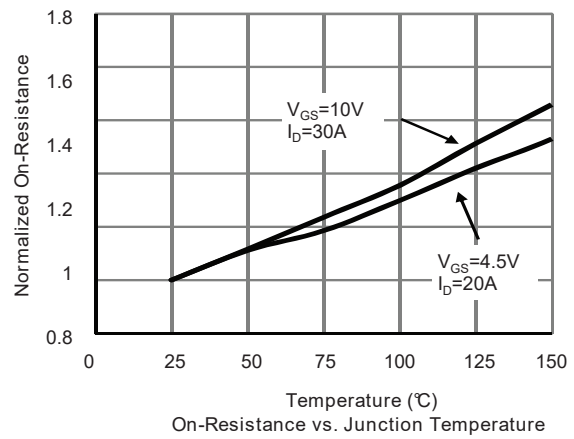
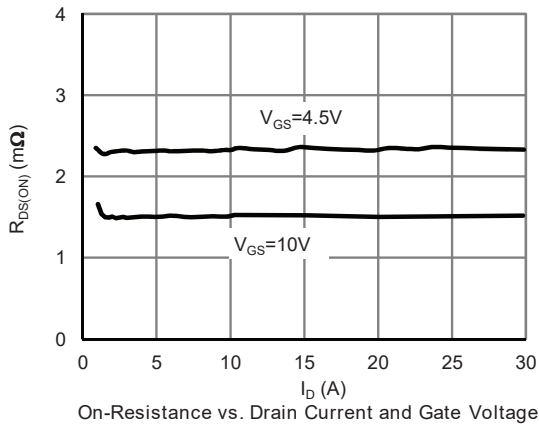
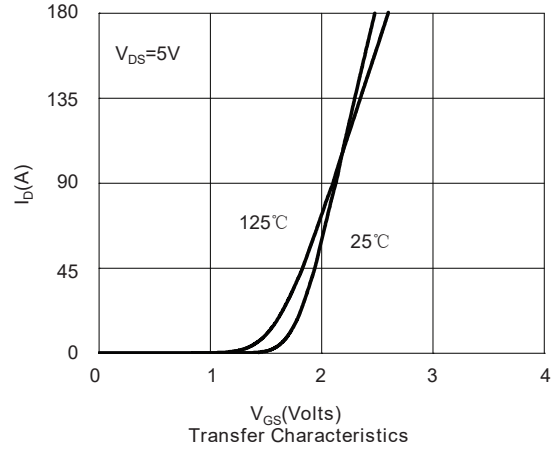
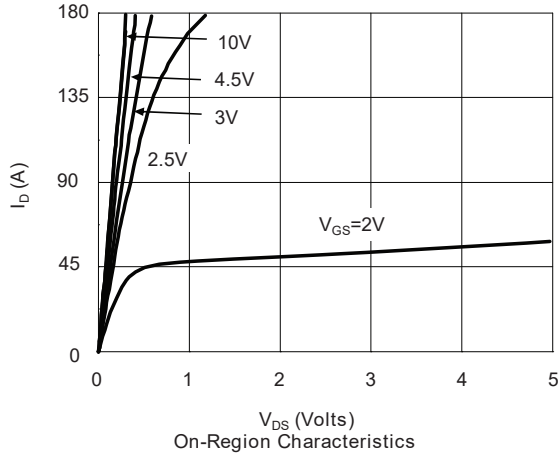
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Diode continuous forward current	V _G =V _b =0V , Force Current	---	---	50	A
I _{S,pulse}	Diode pulse current		---	---	200	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =20A , T _J =25°C	---	0.75	1	V

Notes:

1.The EAS data shows Max. rating .The test condition is V_{DS}=25V , V_{GS}=10V , L=0.5mH , I_{AS} =41A.

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Typical Characteristics



Typical Characteristics

