

N-Channel Enhancement Mode MOSFET

General Description

This N-Channel MOSFET is produced using Cmos's advanced Power Trench process that has been especially tailored to minimize the on-state resistance and yet maintain superior switching performance.

Features

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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	40	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	22	A
$I_D@T_C=100^\circ C$		13	A
$I_{DM}$	Pulsed Drain Current	44	A
EAS	Single Pulse Avalanche Energy <sup>1</sup>	67	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	30	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-to-Ambient	---	53	$^\circ C/W$

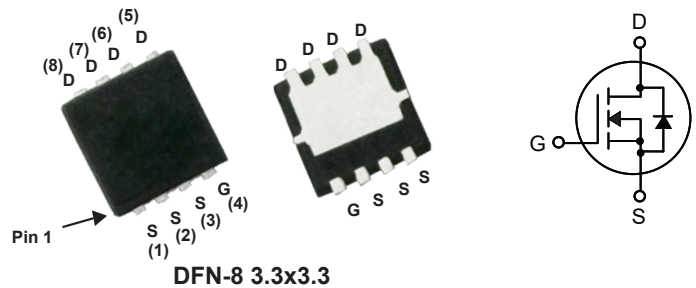
Product Summary

BVDSS	RDSON	ID
40V	21m $\Omega$	22A

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
CMSC8015	DFN-8 3.3*3.3	8015

**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	$V_{GS}=10V, I_D=12A$	---	16.5	21	m $\Omega$
		$V_{GS}=4.5V, I_D=10A$	---	22	30	
$V_{GS(th)}$	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	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS} = \pm 20V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=5V, I_D=12A$	---	13	---	S
$Q_g$	Total Gate Charge	$V_{DD}=20V, I_D=7A$ $V_{GS}=0$ to 10V	---	14	---	nC
$Q_{gs}$	Gate-Source Charge		---	2	---	
$Q_{gd}$	Gate-Drain Charge		---	2.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=20V, V_{GS}=10V, I_D=7A$ $R_{GEN}=6\Omega$	---	7	---	ns
$T_r$	Rise Time		---	3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	20	---	
$T_f$	Fall Time		---	2	---	
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	850	---	pF
$C_{oss}$	Output Capacitance		---	90	---	
$C_{rss}$	Reverse Transfer Capacitance		---	50	---	

**Diode Characteristics**

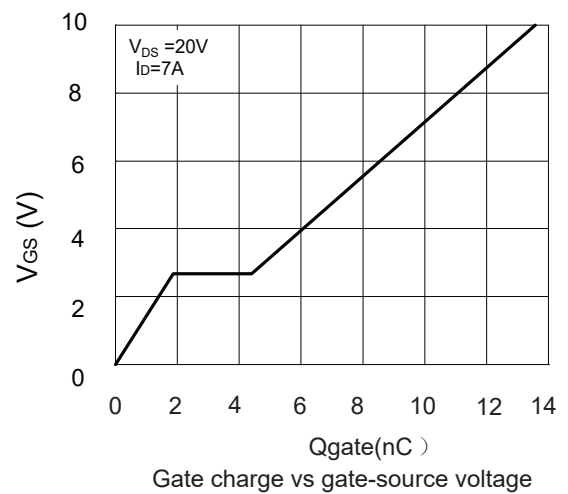
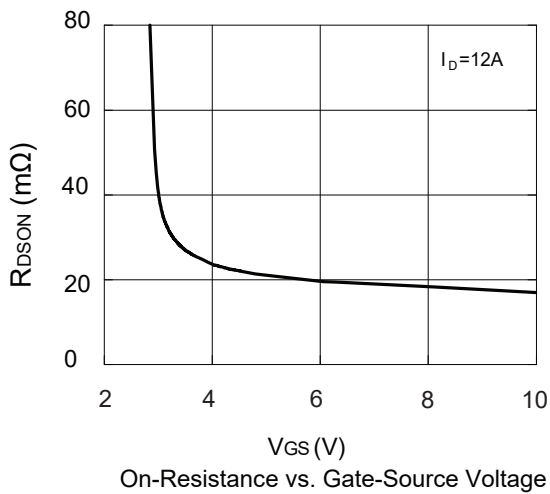
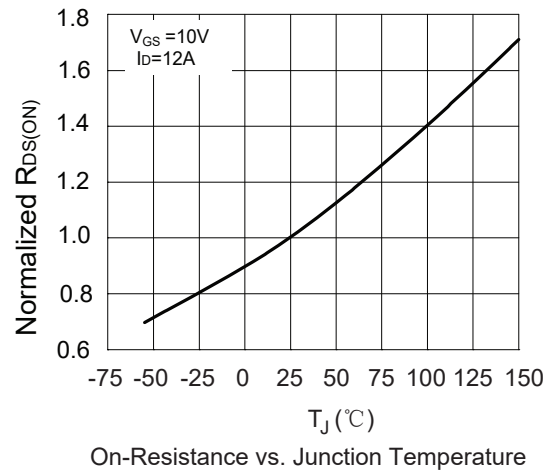
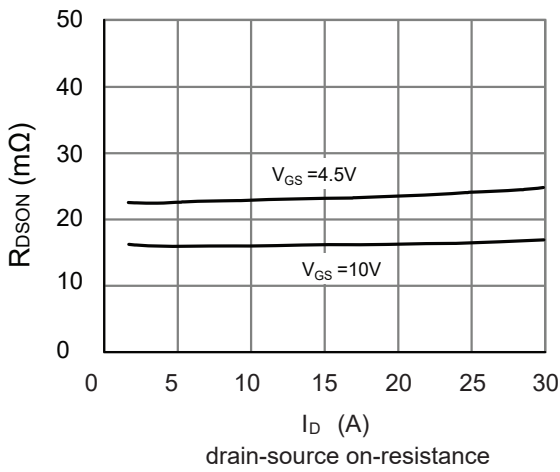
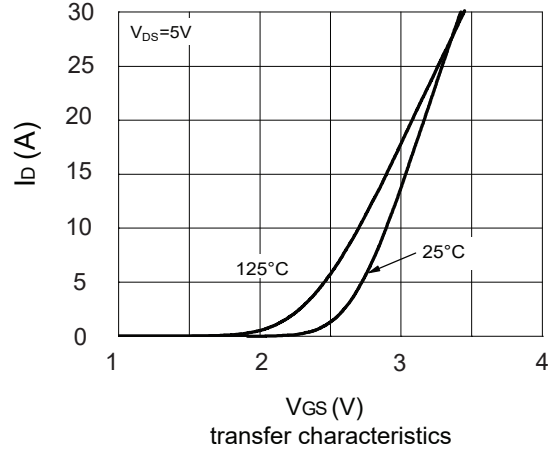
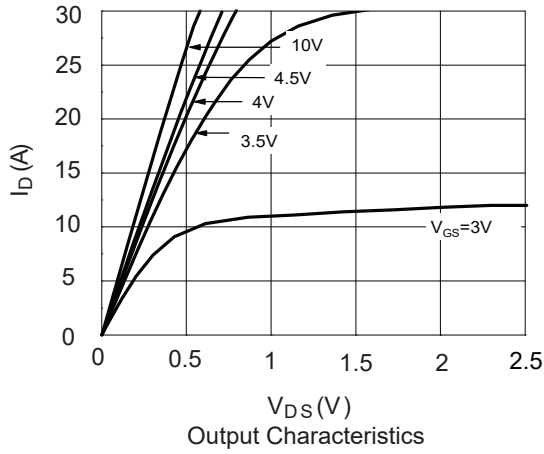
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Diode continuous forward current	$V_G=V_D=0V$ , Force Current	---	---	22	A
$I_{S,pulse}$	Diode pulse current		---	---	44	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_F=12A, T_J=25^{\circ}\text{C}$	---	0.86	1.2	V

Notes:

1.The EAS data shows Max. rating .The test condition is  $V_{DS}=20V, V_{GS}=10V, L=1mH, I_{AS}=11.6A$ .

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Typical Characteristics



Typical Characteristics

