

General Description

The CMSA50DN04 uses advanced trench technology to provide excellent RDS (ON), This device is suitable for use in high performance automotive applications.

Features

- Dual N-Channel MOSFET
- 100% avalanche tested
- Small Footprint (5x6mm) for Compact Design
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	35	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy ¹	196	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	60	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-to-Ambient	---	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.1	$^\circ\text{C/W}$

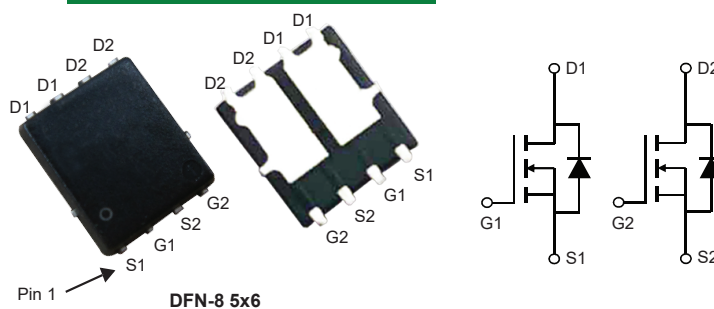
Product Summary

BVDSS	RDSON	ID
40V	8.2m Ω	50A

Applications

- Switching applications
- Motor Drive
- Automotive

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA50DN04	DFN-8 5*6	CMSA50DN04

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	$V_{GS}=10V$, $I_D=15A$	---	7.4	8.2	m Ω
		$V_{GS}=4.5V$, $I_D=10A$	---	10.5	12.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=40V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=10A$	---	18	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=20V$, $I_D=12A$ $V_{GS}=0$ to $4.5V$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	8.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=3.3\Omega$ $I_D=1A$	---	15	---	ns
T_r	Rise Time		---	3	---	
$T_{d(off)}$	Turn-Off Delay Time		---	70	---	
T_f	Fall Time		---	8	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	3000	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	180	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	50	A
$I_{S,pulse}$	Diode pulse current		---	---	200	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=15A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

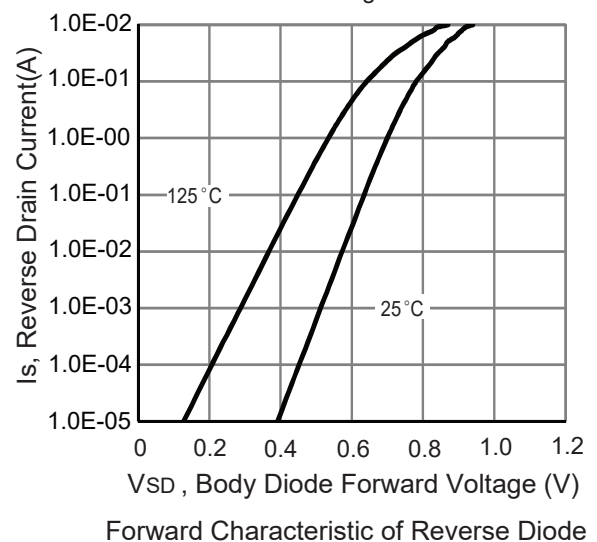
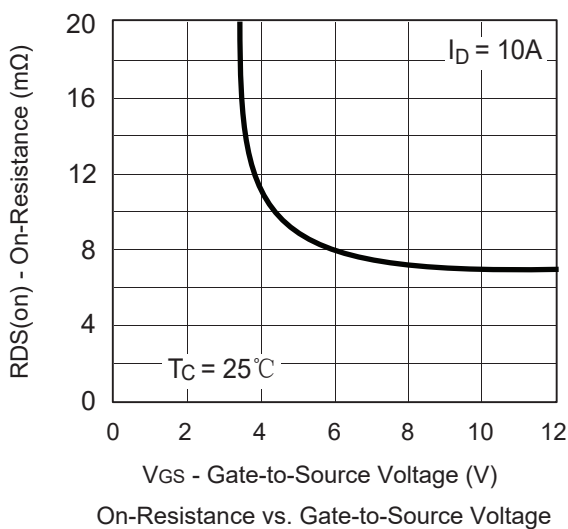
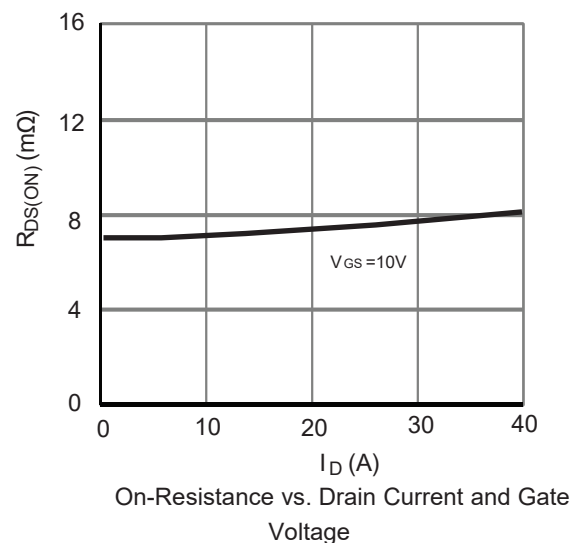
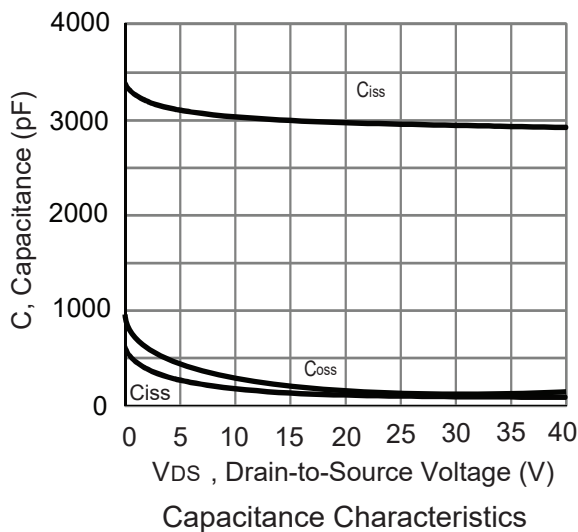
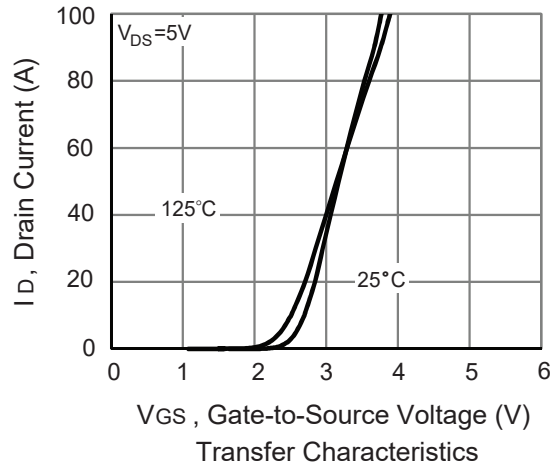
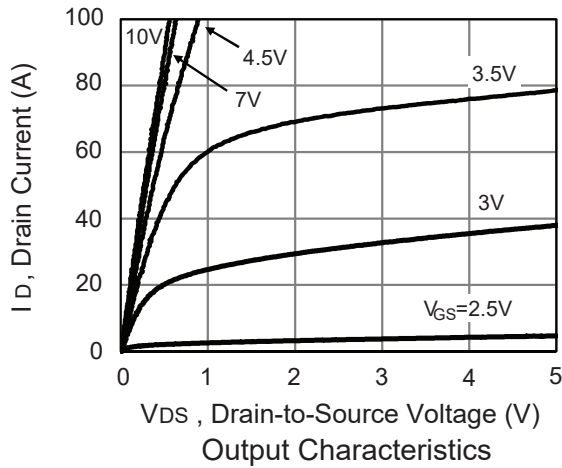
1.The EAS data shows Max. rating .The test condition is $V_{DS}=30V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=28A$.

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.

Typical Characteristics



Package Dimensions

DFN-8 5x6

