

General Description

The CMSA040N10 uses advanced process technology and design to provide excellent RDS(ON). It can be used in a wide variety of applications.

Features

- Low On-Resistance
- 100% avalanche tested
- Small Footprint (5x6 mm) for Compact Design
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	130	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	91	A
I_{DM}	Pulsed Drain Current	520	A
EAS	Single Pulse Avalanche Energy ¹	338	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	180	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(Steady-State)	---	55	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	0.69	°C/W

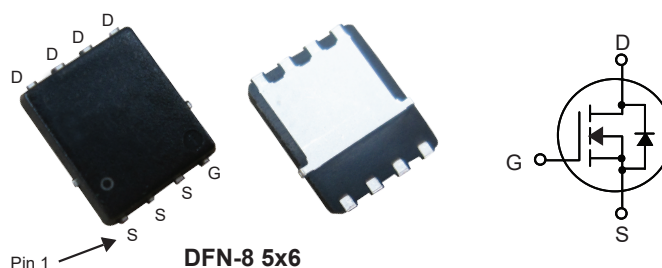
Product Summary

BVDSS	R _{DS(on)} max.	ID
100V	3.8mΩ	130A

Applications

- DC-DC Converter
- Motor Drive
- Powertrain Management

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA040N10	DFN-8 5x6	CMSA040N10

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	3.3	3.8	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=100V$, $V_{GS}=0V$	---	---	1	uA
		$V_{DS}=100V$, $V_{GS}=0V$, $T_J=125^{\circ}\text{C}$	---	---	100	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	29	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.5	---	Ω
Q_g	Total Gate Charge	$V_{DD}=50V$, $I_D=20A$ $V_{GS}=10V$	---	65	---	nC
Q_{gs}	Gate-Source Charge		---	20	---	
Q_{gd}	Gate-Drain Charge		---	10	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=50V$, $V_{GS}=10V$, $R_L=2.5\Omega$ $R_G=3\Omega$	---	20	---	ns
T_r	Rise Time		---	6	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7300	---	pF
C_{oss}	Output Capacitance		---	2300	---	
C_{rss}	Reverse Transfer Capacitance		---	260	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	130	A
I_{SM}	Pulsed Source Current		---	---	520	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=28A$, $T_J=25^{\circ}\text{C}$	---	0.83	1.2	V

Note :

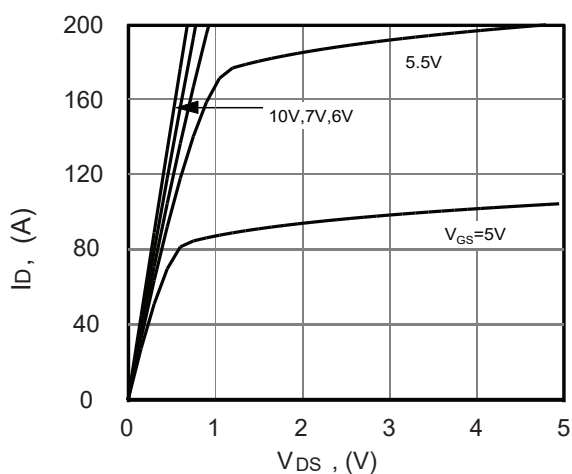
1.The EAS data shows Max. rating . The test condition is $V_{DD}=80V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=26A$.

This product has been designed and qualified for the consumer market.

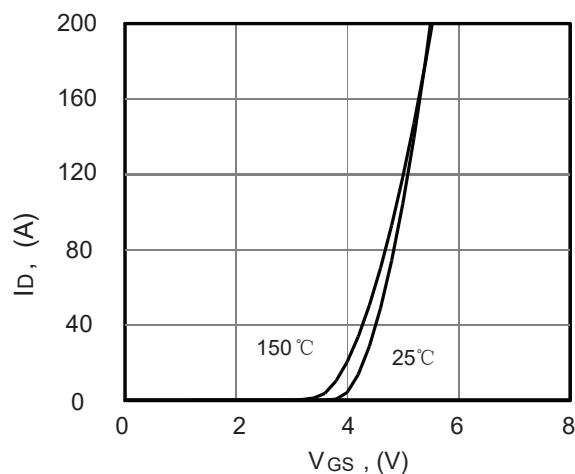
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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

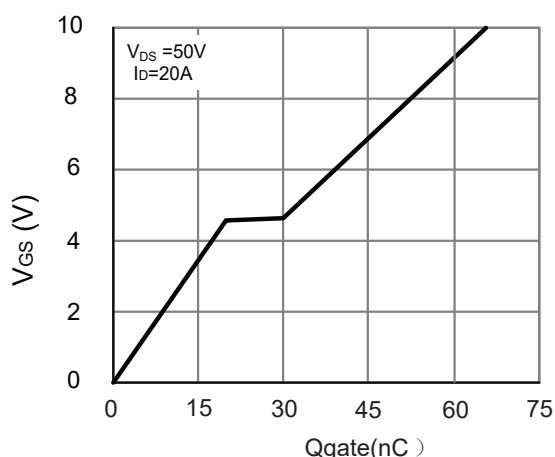
Typical Characteristics



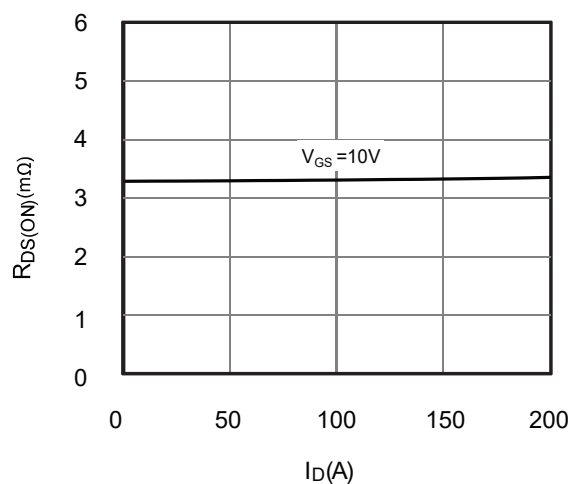
Output Characteristics



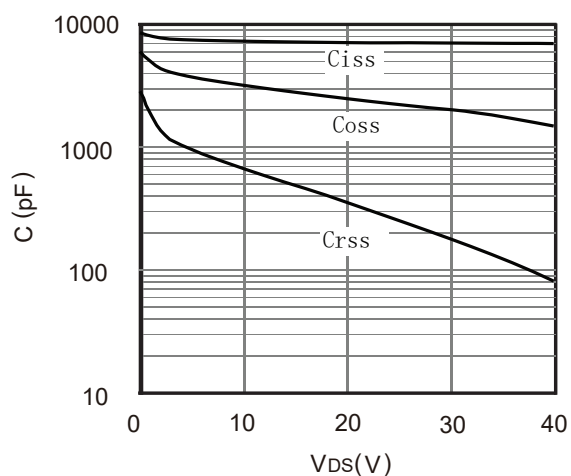
Transfer Characteristics



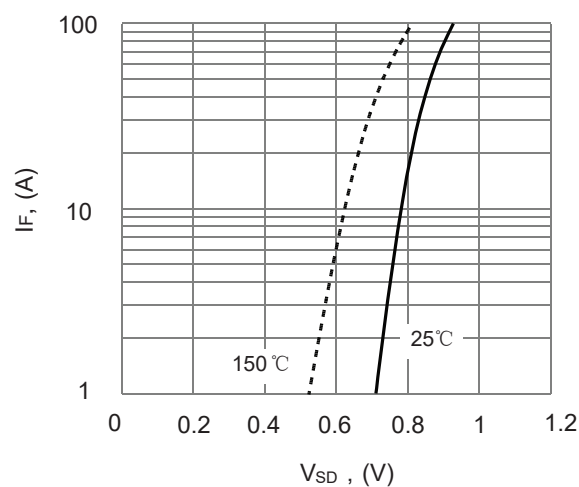
Gate charge vs gate-source voltage



Drain-source on-state resistance



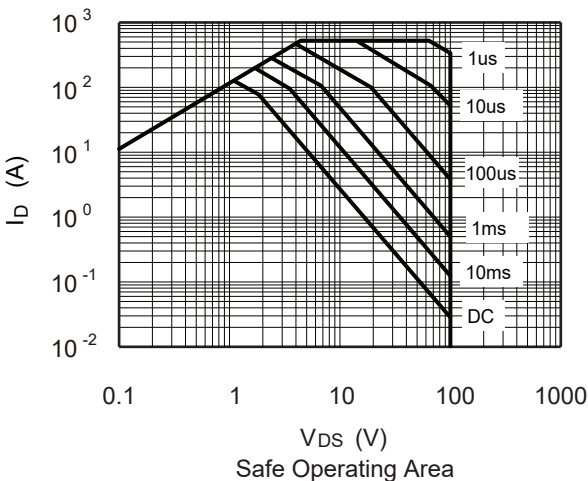
Capacitance Characteristics



Forward characteristics of reverse diode

Characteristics

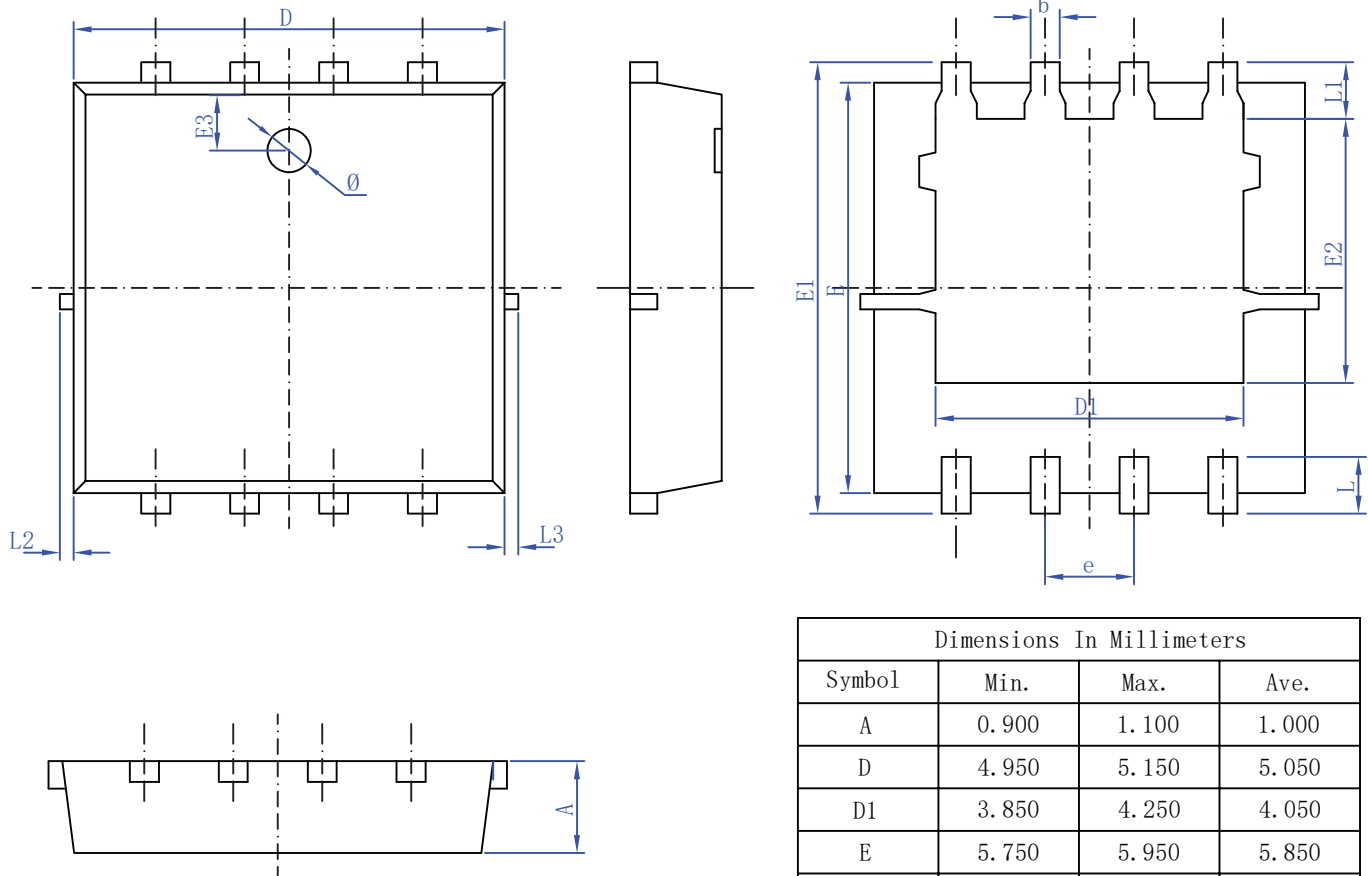
100V, 3.3m Ω typ., 130A N-Channel MOSFET



Package Dimension

DFN-8 5x6

Unit :mm



注:

1. 未注公差±0.05未标注圆角R max=0.25

Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.900	1.100	1.000
D	4.950	5.150	5.050
D1	3.850	4.250	4.050
E	5.750	5.950	5.850
E1	5.950	6.350	6.150
E2	3.300	3.700	3.500
E3	0.900	1.300	1.100
b	0.250	0.350	0.300
e	1.220	1.320	1.270
L	0.585	0.785	0.685
L1	0.525	0.725	0.625
Ø	1.000	1.400	1.200
L2	0~0.100		
L3	0~0.100		