

General Description

The CMSA046N10A uses advanced SGT technology to provide excellent $R_{DS(ON)}$.

This is suitable device for Synchronous Rectification For Server and general purpose 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	100	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	80	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	533	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	150	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(min.footprint)	---	55	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	0.83	°C/W

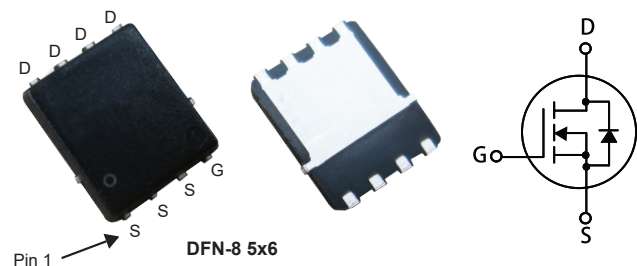
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	4.6mΩ	100A

Applications

- DC-DC Converter
- Motor Drive
- Powertrain Management

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA046N10A	DFN-8 5x6	046N10A

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	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =28A	---	3.8	4.6	mΩ
		V _{GS} =6V , I _D =25A	---	4.6	7	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V , V _{GS} =0V	---	---	1	μA
		V _{DS} =100V , V _{GS} =0V , T _J =125°C	---	---	100	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =20A	---	39	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	1.5	---	Ω
Q _g	Total Gate Charge	I _D =50A	---	65	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =50V	---	20	---	
Q _{gd}	Gate-Drain Charge	V _{GS} = 10V	---	12	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =50V V _{GS} = 10V R _{G_ext} =2.7Ω	---	22	---	ns
T _r	Rise Time		---	92	---	
T _{d(off)}	Turn-Off Delay Time		---	40	---	
T _f	Fall Time		---	82	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	5300	---	pF
C _{oss}	Output Capacitance		---	1800	---	
C _{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	100	A
I _{SM}	Pulsed Source Current		---	---	400	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =20A , T _J =25°C	---	0.81	1.4	V
t _{rr}	Reverse Recovery Time	I _F =50A	---	65	---	ns
Q _{rr}	Reverse Recovery Charge	di _F /dt=100A/μs	---	120	---	nC

Note :

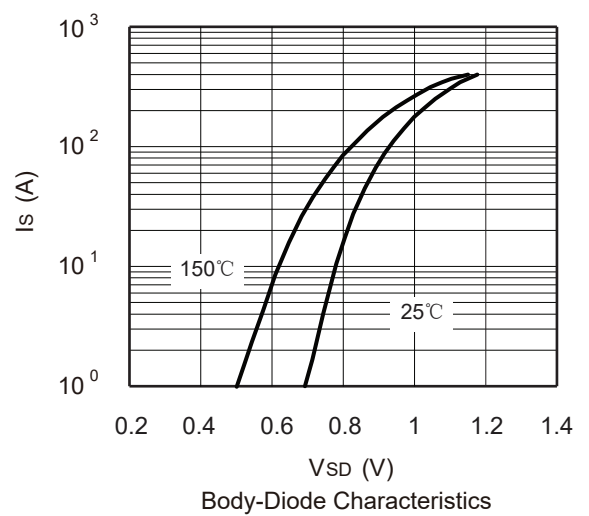
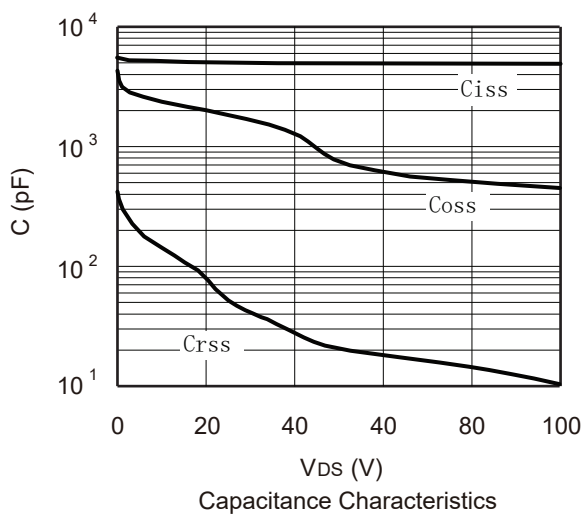
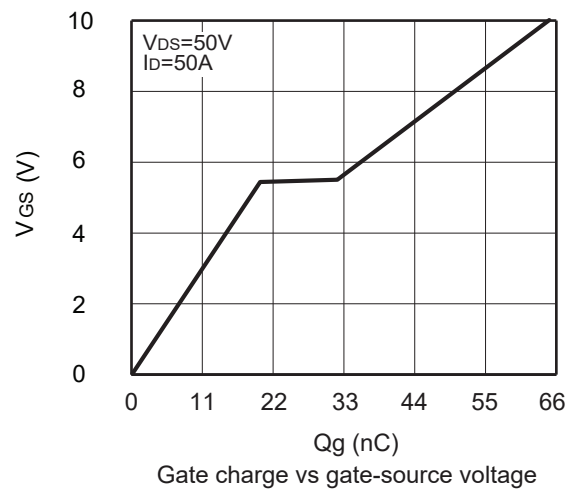
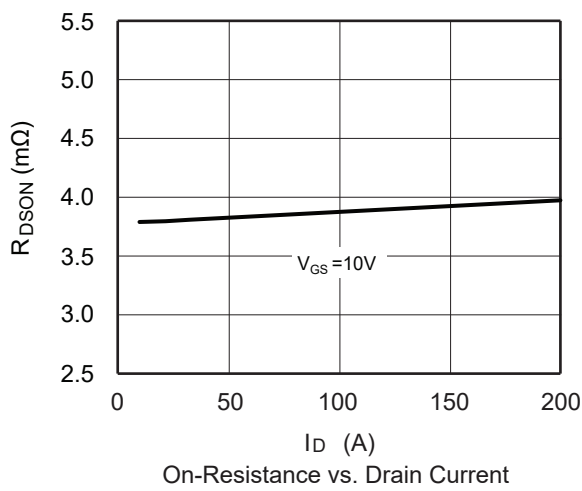
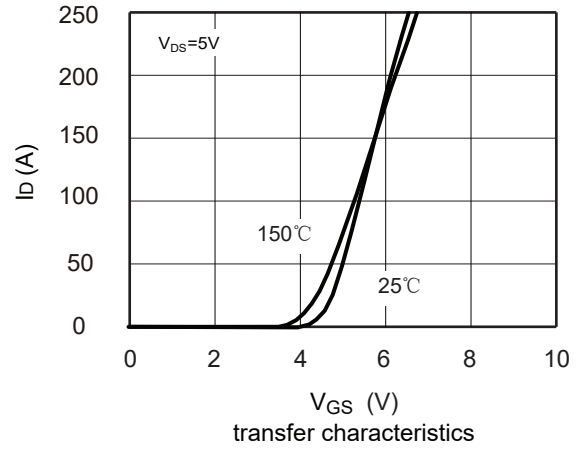
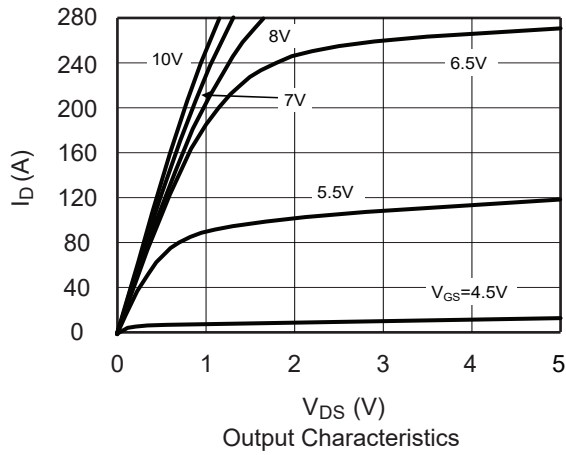
1.The EAS data shows Max. rating .The test condition is V_{bs}=50V , V_{GS}=10V , L=0.5mH , I_{AS}=46.2A.

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

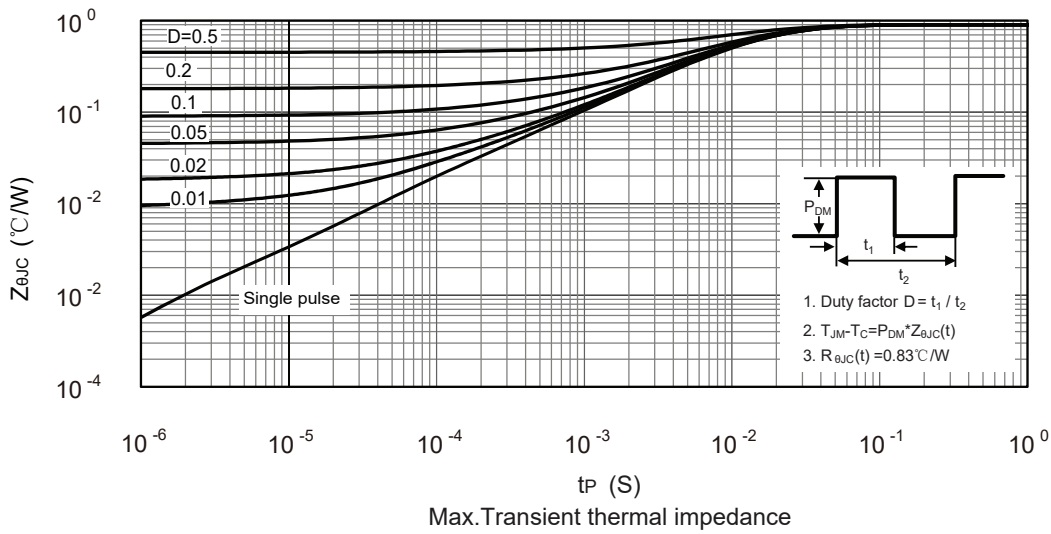
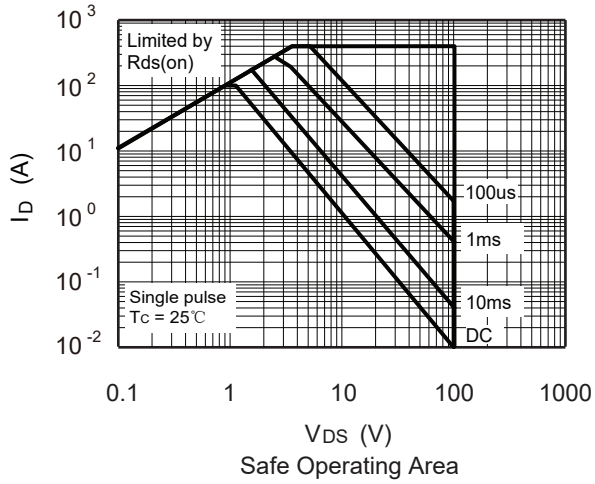
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Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

Typical Characteristics



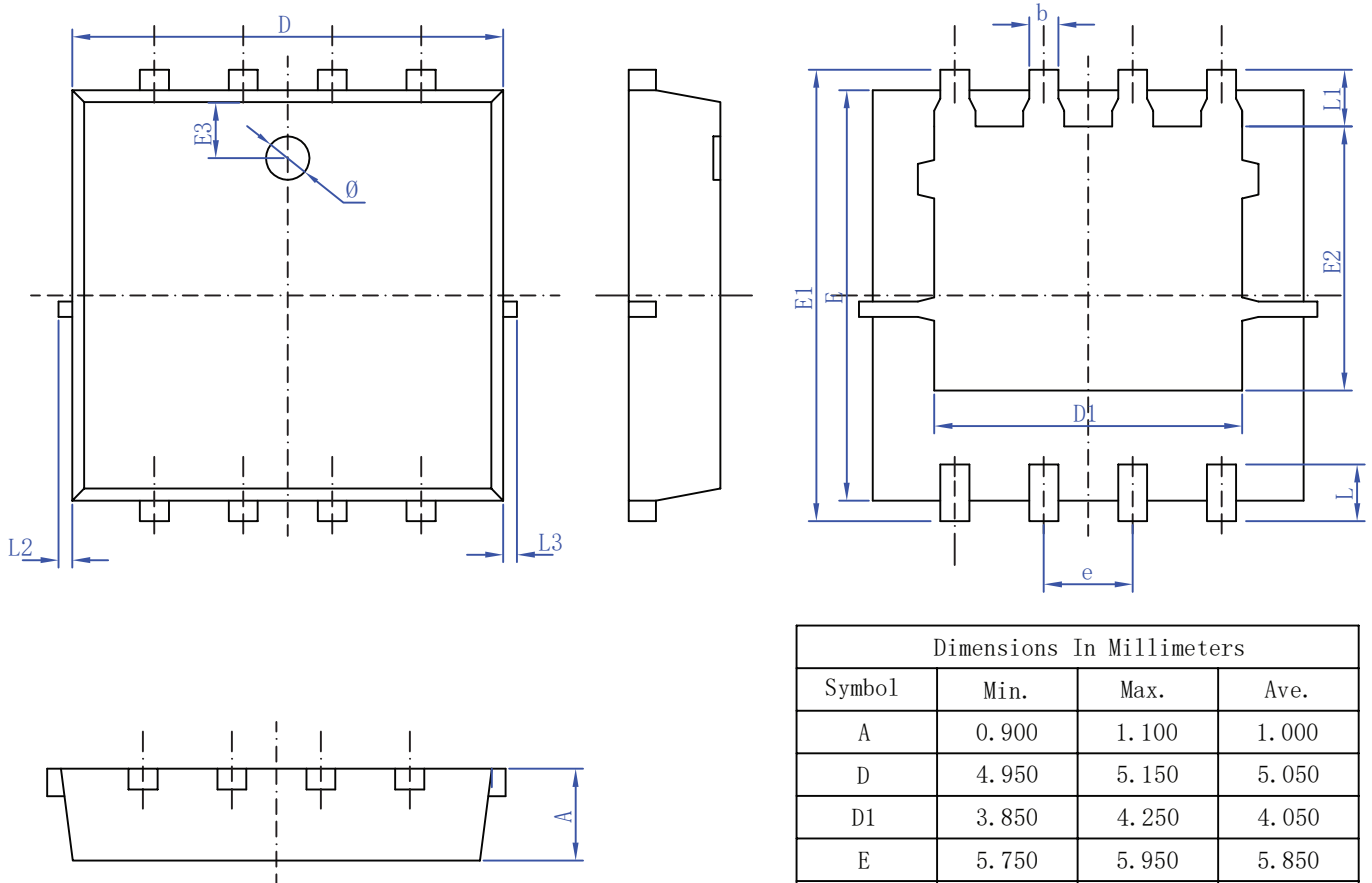
Typical Characteristics



Package Dimension

DFN-8 5x6

Unit :mm



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		

注:

1. 未注公差±0.05未标注圆角R max=0.25