

General Description

The CMSA025N06 uses advanced SGT technology to provide excellent RDS(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	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	100	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	625	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	120	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-ambient(Steady-State)	---	50	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case(Steady-State)	---	1.04	$^\circ\text{C}/\text{W}$

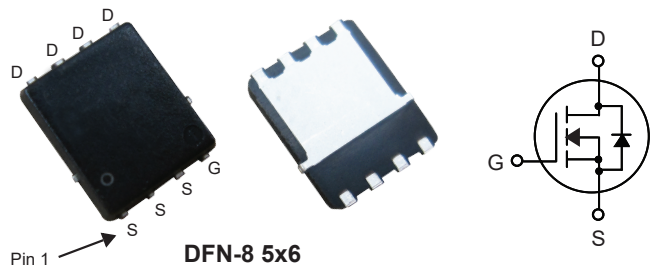
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
60V	2.4mΩ	100A

Applications

- Battery management
- High Frequency Switching and Synchronous Rectification

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA025N06	DFN-8 5x6	CMSA025N06

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	2.1	2.4	mΩ
		$V_{GS}=4.5V$, $I_D=25A$	---	2.7	3.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1.0	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=25A$	---	48	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.0	---	Ω
Q_g	Total Gate Charge	$I_D=40A$ $V_{DS}=30V$ $V_{GS}=10V$ (Note 2)	---	74	---	nC
Q_{gs}	Gate-Source Charge		---	17	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V$ $V_{GS}=10V$ $R_{G_{ext}}=2.7\Omega$ $I_D=40A$ (Note 2)	---	14	---	ns
T_r	Rise Time		---	64	---	
$T_{d(off)}$	Turn-Off Delay Time		---	47	---	
T_f	Fall Time		---	105	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	4700	---	pF
C_{oss}	Output Capacitance		---	1500	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

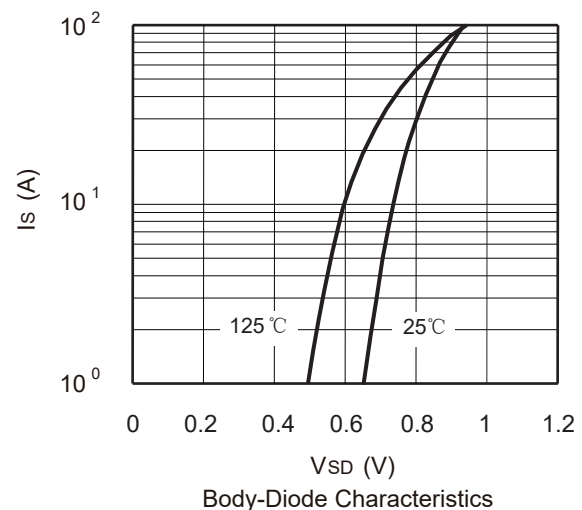
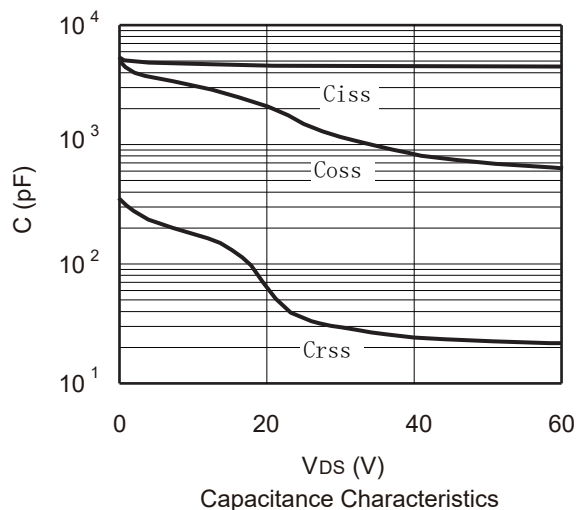
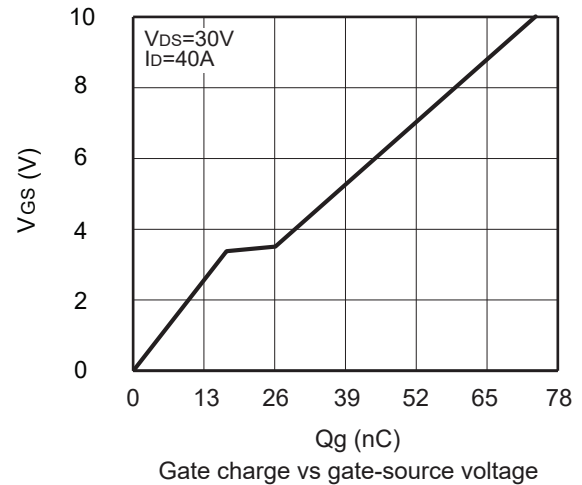
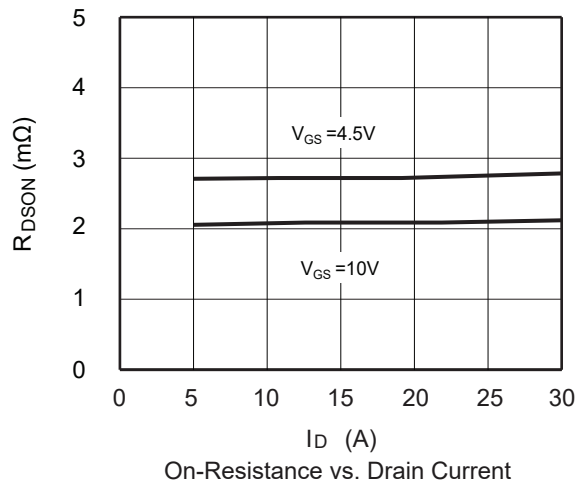
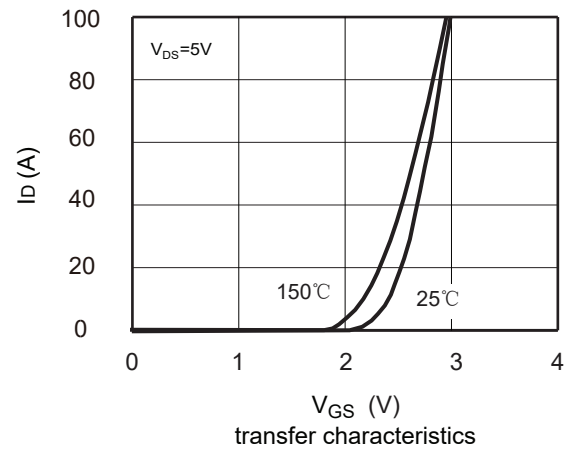
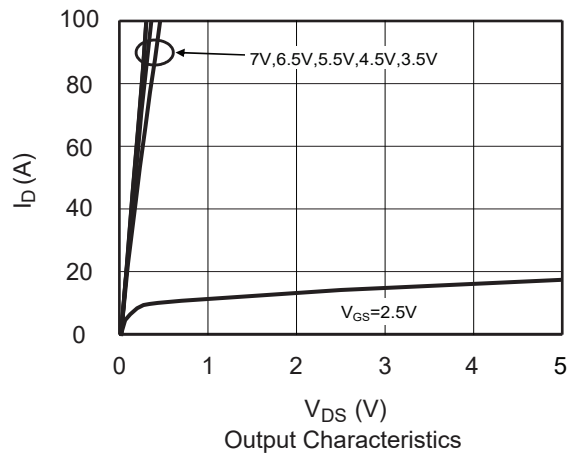
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$	---	0.80	1.2	V

Note :

- 1.The EAS data shows Max. rating . The test condition is $V_{DD}=35V$, $V_{GS}=10V$, $L=0.5\text{mH}$, $I_{AS}=50A$.
- 2.Guaranteed by design, not subject to production testing.

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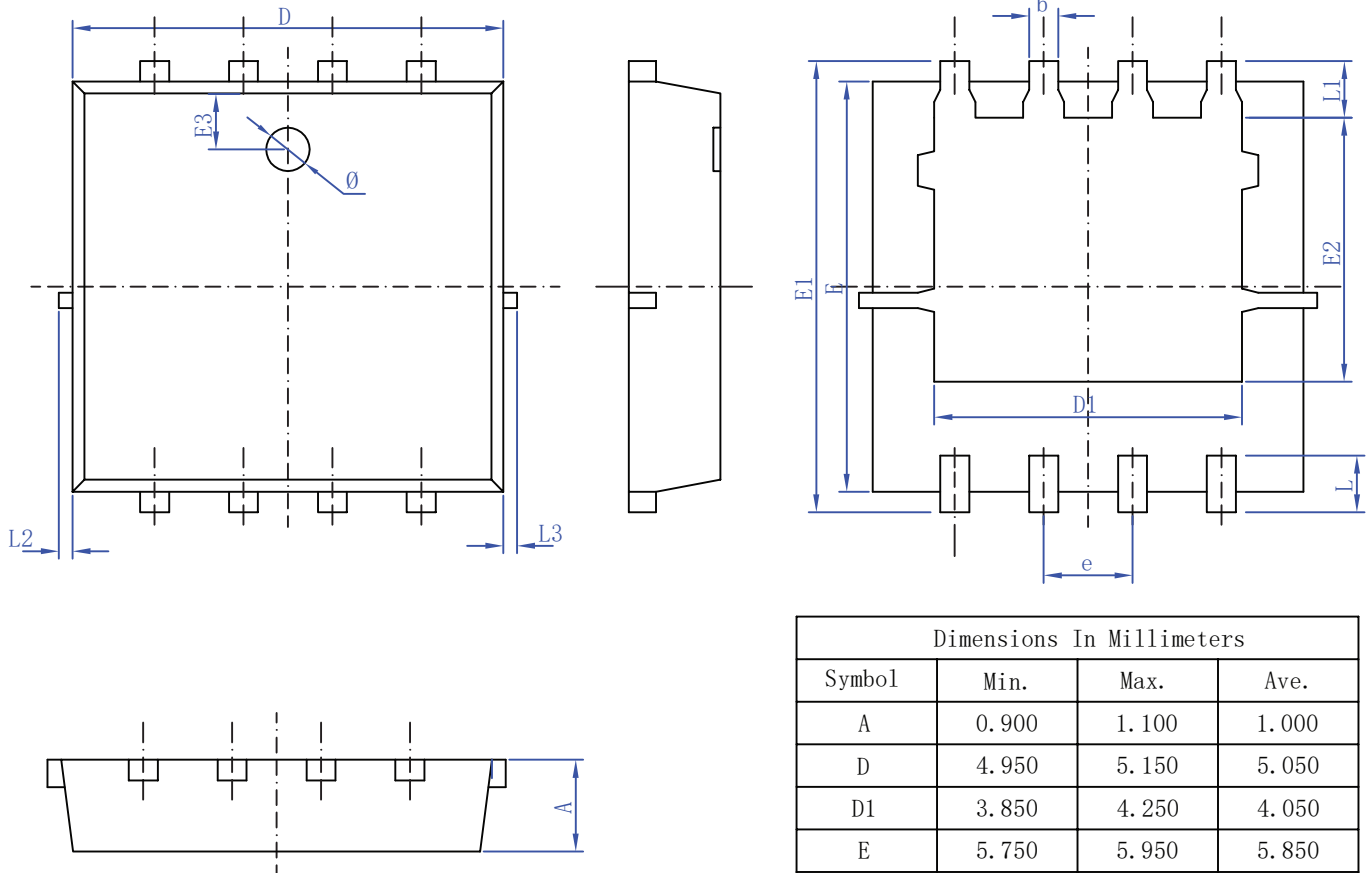
Typical Characteristics



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		