CMSA006N03L

30V, 0.65mΩ typ., 350A N-Channel MOSFET

General Description

The CMSA006N03L uses advanced SGT technology to provide excellent RDS(ON).This is suitable device for Synchronous Rectification for Server and general purpose applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	0.8mΩ	350A

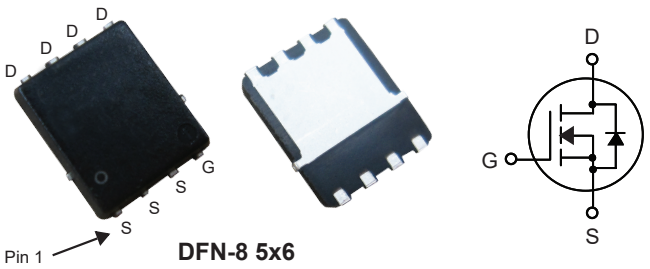
Applications

- Synchronous rectification

Features

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

DFN-8 5x6 Pin Configuration



DFN-8 5x6

Type	Package	Marking
CMSA006N03L	DFN-8 5x6	CMSA006N03L

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	350	A
I_D@T_C=100℃	Continuous Drain Current	240	A
I_{DM}	Pulsed Drain Current	1400	A
EAS	Single Pulse Avalanche Energy[1]	1024	mJ
P_D@T_C=25℃	Total Power Dissipation	200	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.63	℃/W

Electrical Characteristics(T_J=25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=30A	---	0.65	0.8	mΩ
		V_{GS}=4.5V , I_D=20A	---	0.8	1	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	---	2.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS} =0V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	68	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.4	---	Ω
Q_g	Total Gate Charge	I_D=25A V_{DS}=15V V_{GS}=4.5V	---	51	---	nC
Q_{gs}	Gate-Source Charge		---	15.3	---	
Q_{gd}	Gate-Drain Charge		---	13.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS} =15V , R_L=0.6Ω V_{GS} =4.5V $R_{G(ext)}$ =5Ω	---	38.1	---	ns
T_r	Rise Time		---	49.8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	63	---	
T_f	Fall Time		---	42.6	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	7350	---	pF
C_{oss}	Output Capacitance		---	2000	---	
C_{rss}	Reverse Transfer Capacitance		---	300	---	

Diode Characteristics

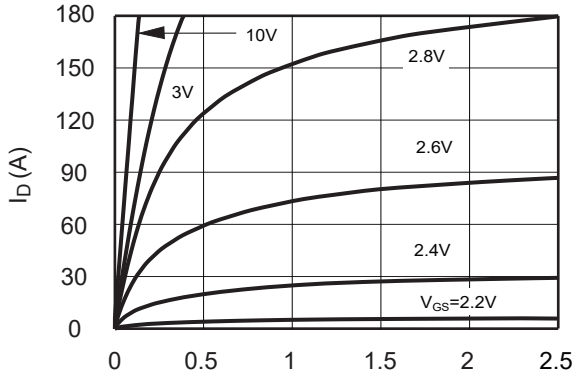
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	350	A
I_{SM}	Pulsed Source Current		---	---	1400	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=30A ,T_J=25℃	---	0.74	1.2	V

Note :

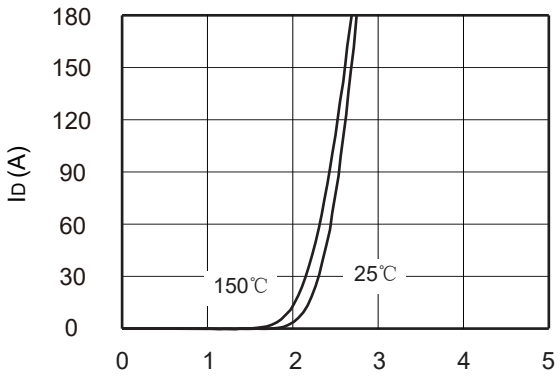
1.The EAS data shows Max. rating . The test condition is V_{DD}=25V , V_{GS}=10V , L=0.5mH , I_{AS}=64A.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

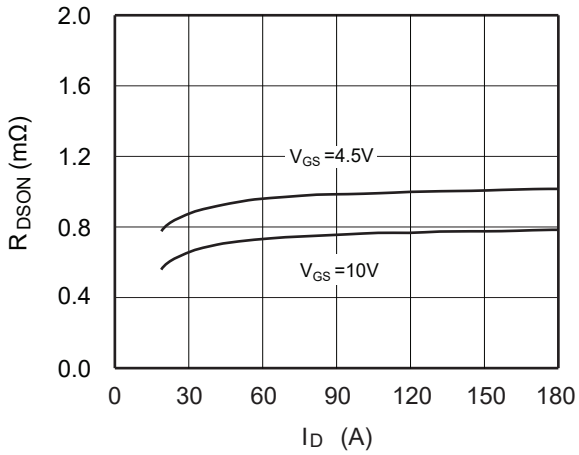
Typical Characteristics



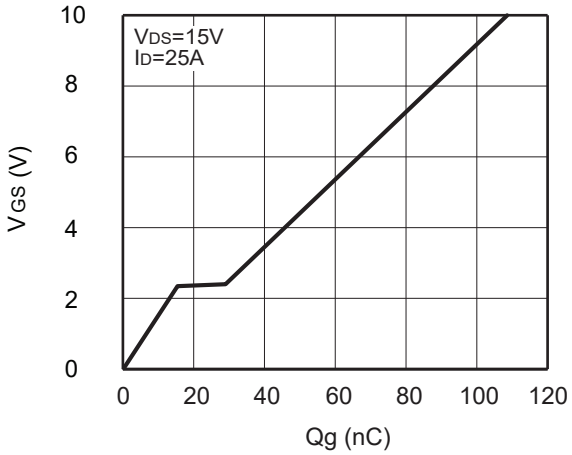
Output Characteristics



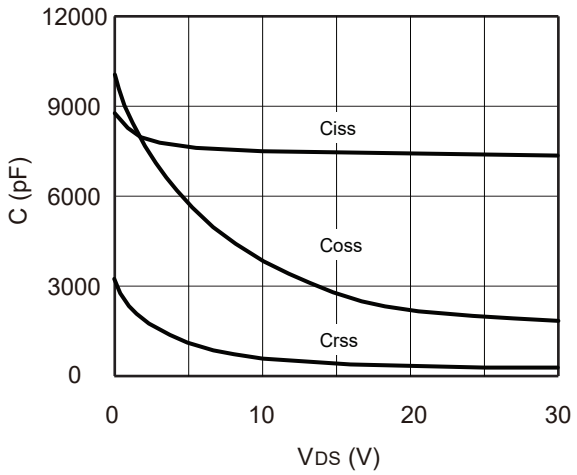
transfer characteristics



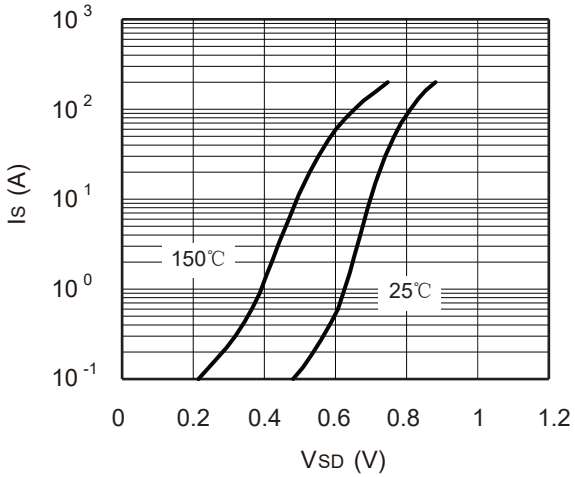
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



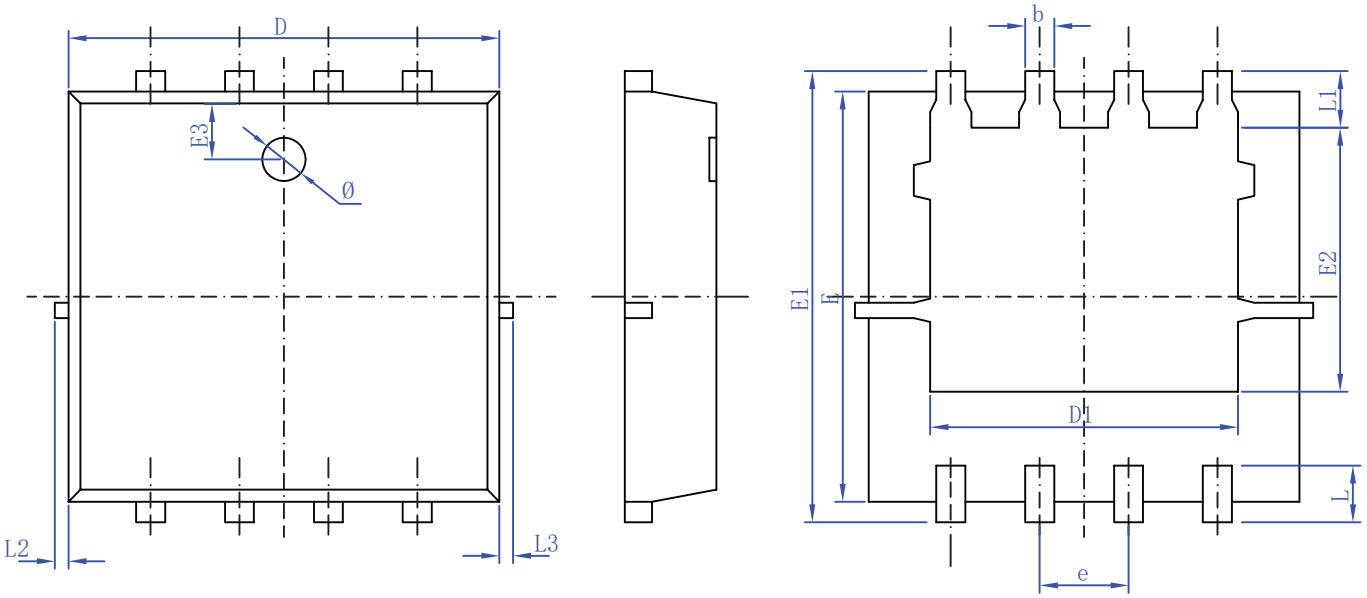
Capacitance Characteristics

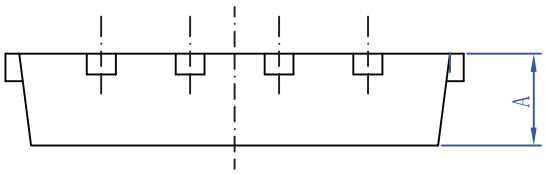


Body-Diode Characteristics

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