CMSA035N06L

N-Channel Enhancement Mode Field Effect Transistor

General Description

The CMSA035N06L 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
60V	3.3mΩ	120A

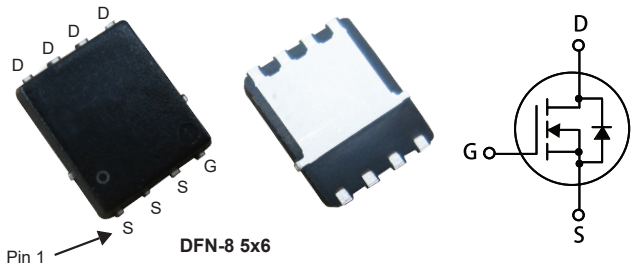
Applications

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

Features

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

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA035N06L	DFN-8 5x6	CMSA035N06L

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℃	Continuous Drain Current	120	A
I_D@T_C=100℃	Continuous Drain Current	95	A
I_{DM}	Pulsed Drain Current	480	A
EAS	Single Pulse Avalanche Energy[1]	840	mJ
P_D@T_C=25℃	Total Power Dissipation	85	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-to-Ambient(6cm² cooling area)	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case(bottom)	---	1.47	℃/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	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=28A	---	---	3.3	mΩ
		V_{GS}=4.5V , I_D=28A	---	---	4.2	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	35	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.2	---	Ω
Q_g	Total Gate Charge	V_{DD}=30V , I_D=26A V_{GS}=10 V	---	41	---	nC
Q_{gs}	Gate-Source Charge		---	14	---	
Q_{gd}	Gate-Drain Charge		---	12	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=30V , V_{GS}=10V , I_D=26A R_{GEN} =4.7Ω	---	25	---	ns
T_r	Rise Time		---	43	---	
$T_{d(off)}$	Turn-Off Delay Time		---	61	---	
T_f	Fall Time		---	23	---	
C_{iss}	Input Capacitance	V_{DS}=30V , V_{GS}=0V , f=1MHz	---	4200	---	pF
C_{oss}	Output Capacitance		---	780	---	
C_{rss}	Reverse Transfer Capacitance		---	12	---	

Diode Characteristics

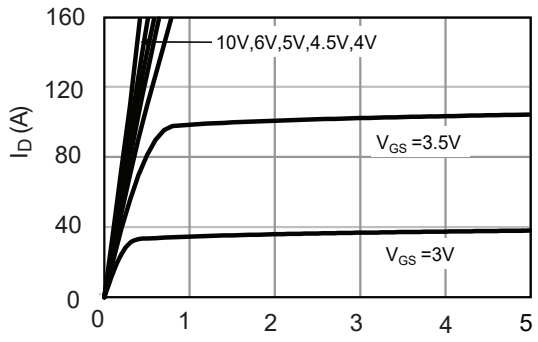
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	120	A
$I_{S,pulse}$	Diode pulse current		---	---	480	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=28A , Tj=25℃	---	---	1	V

Notes:

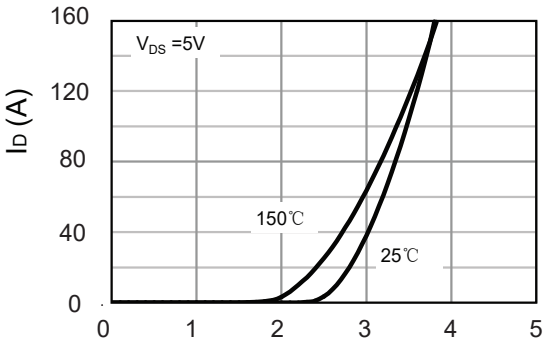
1.The EAS data shows Max. rating .The test condition is V_{DS}=30V , V_{GS}=10V , L=1mH , I_{AS}=41A.

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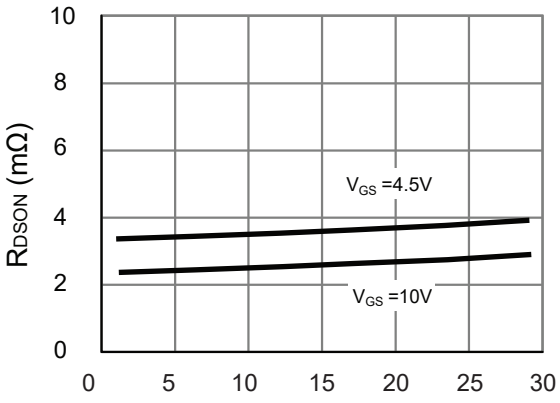
Typical Characteristics



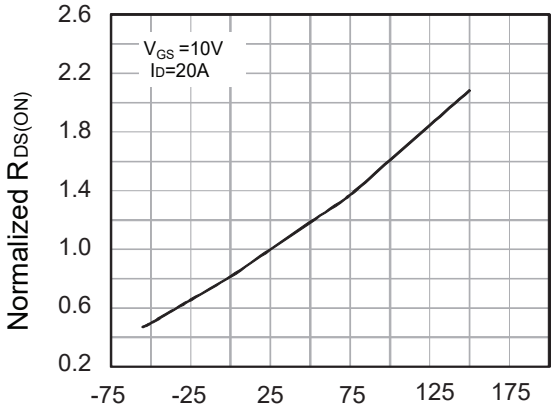
Output Characteristics



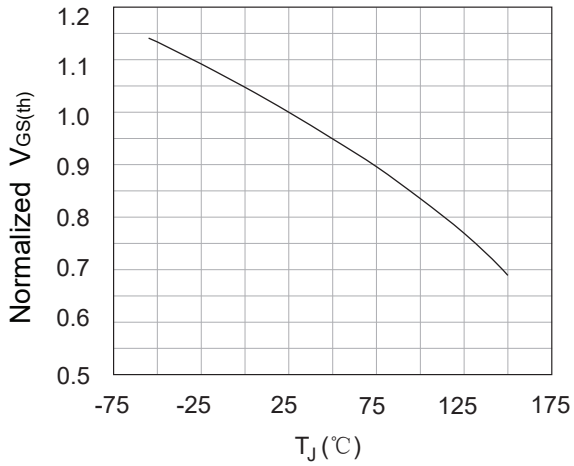
transfer characteristics



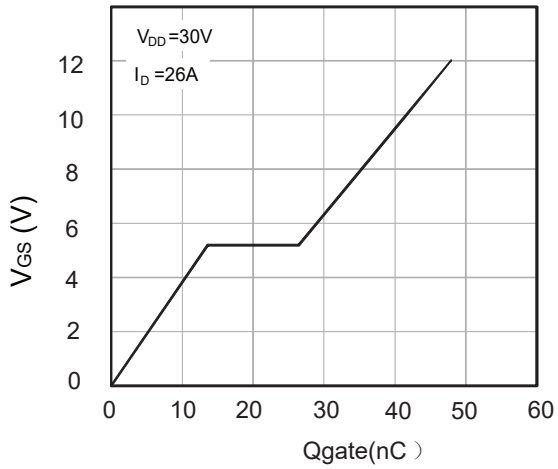
drain-source on-resistance



On-Resistance vs temperature

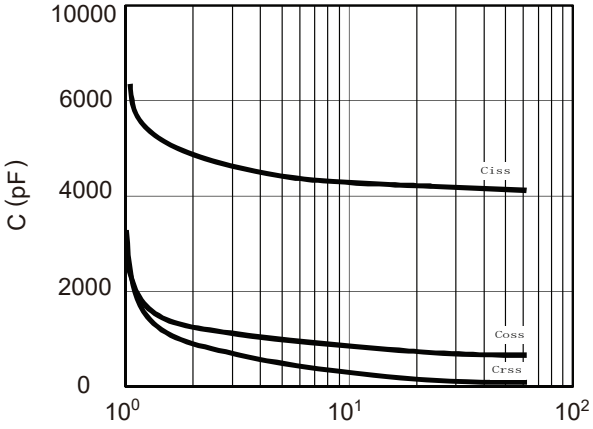


gate threshold voltage vs temperature

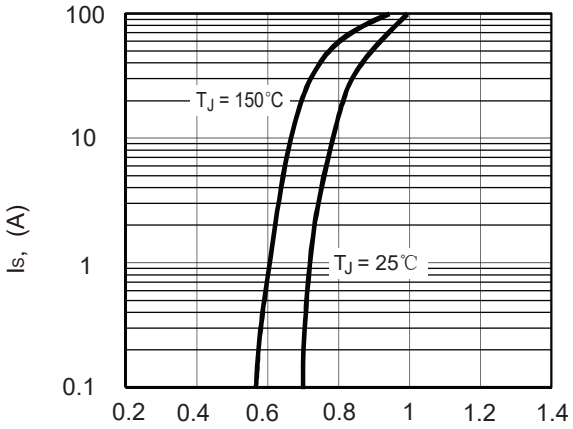


Gate charge vs gate-source voltage

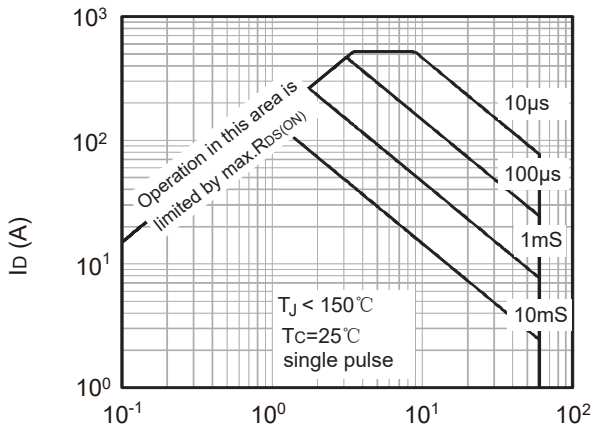
Typical Characteristics



Capacitance Characteristics



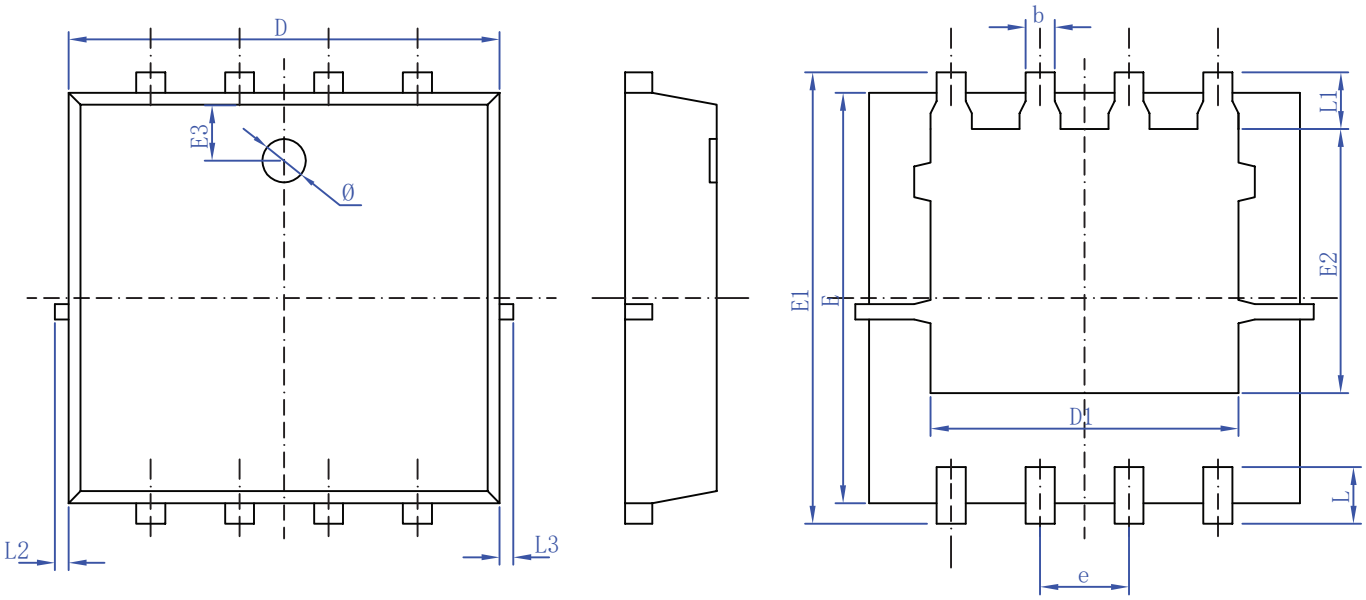
Body-Diode Characteristics

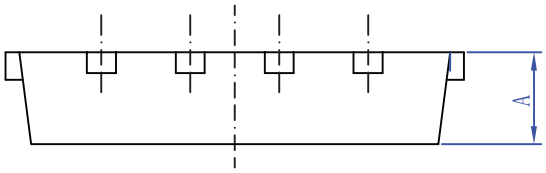


Safe operating area

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