CMSA130N10

100V, 11.6mΩ typ., 58A N-Channel MOSFET

General Description

The CMSA130N10 uses advanced SGT technology to provide excellent RDS(ON).This is suitable device for High Frequency Switching and Synchronous Rectification applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	13mΩ	58A

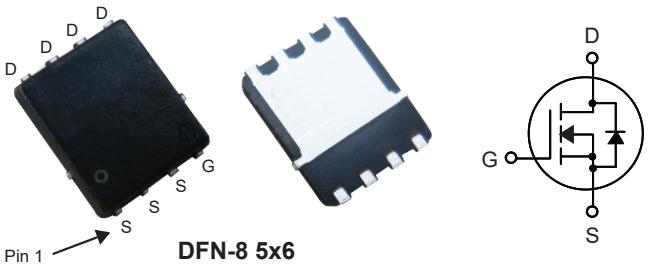
Applications

- Synchronous Rectifier
- Motor Drive

Features

- Low On-Resistance
- 100% avalanche tested
- Simple Drive Requirements
- RoHS Compliant

DFN-8 5x6 Pin Configuration



DFN-8 5x6

Type	Package	Marking
CMSA130N10	DFN-8 5x6	CMSA130N10

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℃	Continuous Drain Current	58	A
I_D@T_C=100℃	Continuous Drain Current	36	A
I_{DM}	Pulsed Drain Current	232	A
EAS	Single Pulse Avalanche Energy[1]	42	mJ
P_D@T_C=25℃	Total Power Dissipation	75	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	---	47	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.67	℃/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	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=20A	---	11.6	13	mΩ
		V_{GS}=4.5V , I_D=20A	---	15.4	18	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	---	3.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=100V , 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	---	19	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.4	---	Ω
Q_g	Total Gate Charge	I_D=30A V_{DS}=50V V_{GS}=10V	---	28.2	---	nC
Q_{gs}	Gate-Source Charge		---	6.5	---	
Q_{gd}	Gate-Drain Charge		---	4.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS} =50V V_{GS} =10V R_{G_ext} =2.7Ω	---	30	---	ns
T_r	Rise Time		---	81	---	
$T_{d(off)}$	Turn-Off Delay Time		---	24	---	
T_f	Fall Time		---	7	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1000	---	pF
C_{oss}	Output Capacitance		---	510	---	
C_{rss}	Reverse Transfer Capacitance		---	34	---	

Diode Characteristics

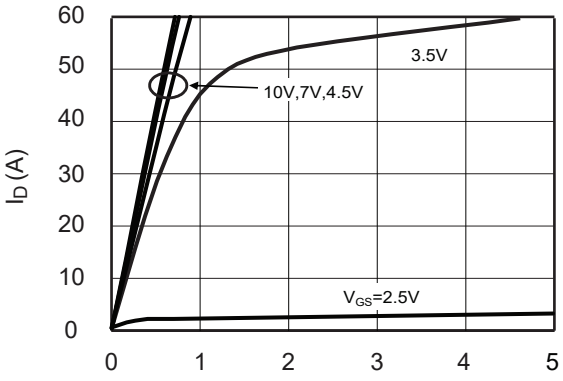
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	58	A
I_{SM}	Pulsed Source Current		---	---	232	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=20A ,T_J=25℃	---	0.88	1.2	V

Note :

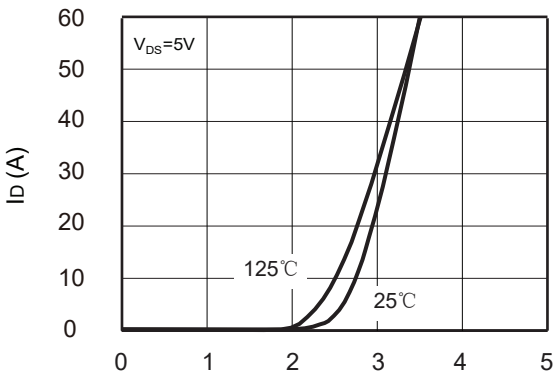
1.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=0.5mH , I_{AS}=13A.

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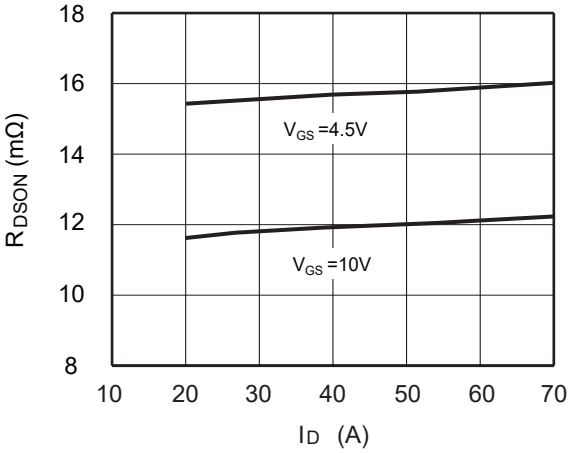
Typical Characteristics



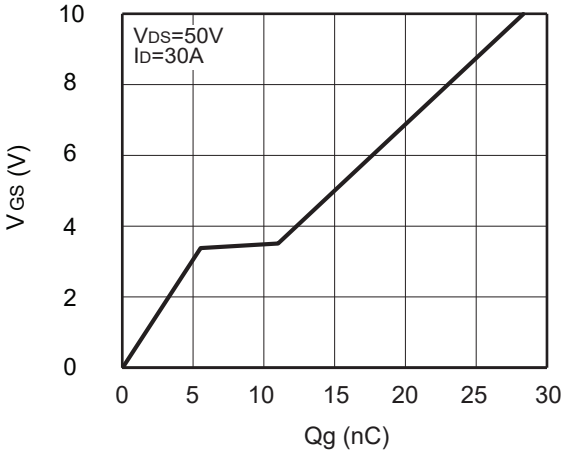
Output Characteristics



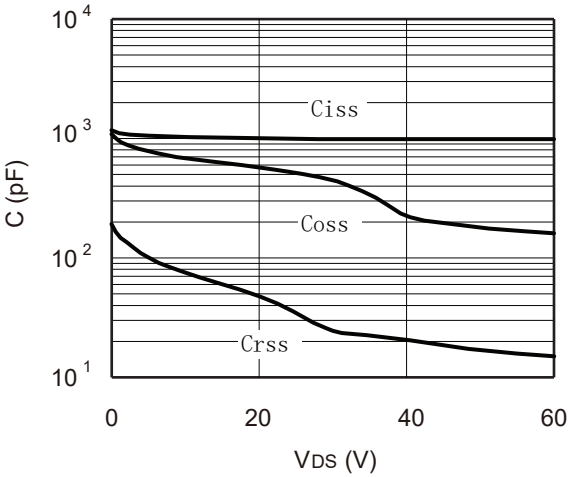
transfer characteristics



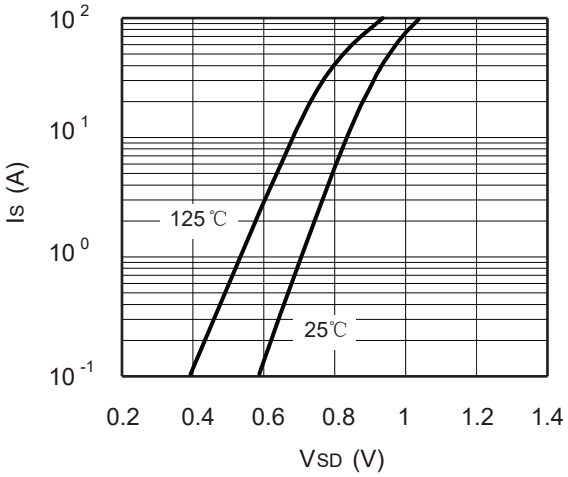
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



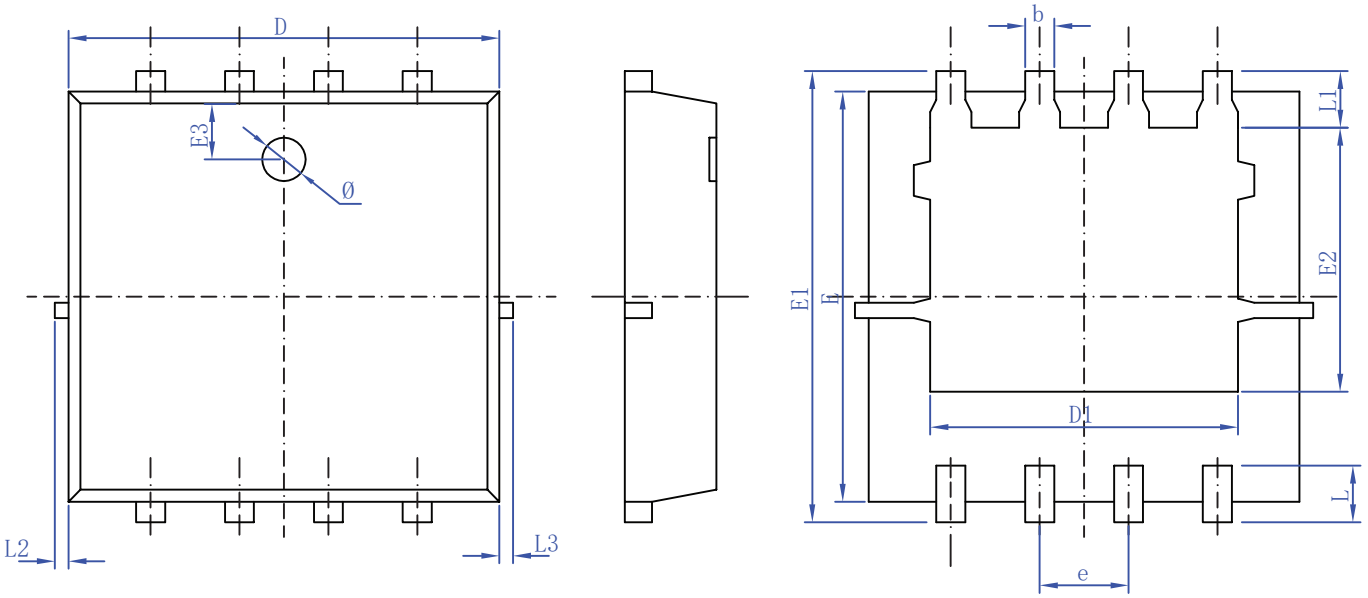
Capacitance Characteristics

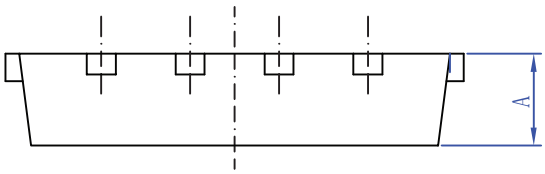


Body-Diode Characteristics

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