CMSA110DN06

60V, 9.7mΩ typ., 50A Dual N-Channel MOSFET

General Description

The CMSA110DN06 uses advanced SGT technology to provide excellent RDS(ON). This device is suitable for use as a Battery protection or in other Switching application.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
60V	11mΩ	50A

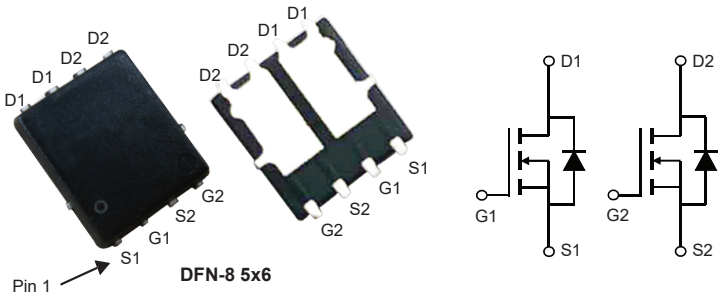
Applications

- DC/DC Converter
- Battery protection
- Uninterruptible power supply

Features

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

DFN-8 5X6 Dual Pin Configuration



Type	Package	Marking
CMSA110DN06	DFN-8 5X6 Dual	CMSA110DN06

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	50	A
I_D@T_C=100℃	Continuous Drain Current	32	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy [1]	49	mJ
P_D@T_C=25℃	Total Power Dissipation	55	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(t ≤ 10s)	---	20	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case(Steady State)	---	2.27	℃/W

60V, 9.7mΩ typ., 50A Dual N-Channel MOSFET

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=20A	---	9.7	11	mΩ
		V_{GS}=4.5V , I_D=15A	---	13	18	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V , 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	---	14.5	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.6	---	Ω
Q_g	Total Gate Charge	V_{DD} =30V , I_D=30A V_{GS}=4.5V	---	10	---	nC
Q_{gs}	Gate-Source Charge		---	4	---	
Q_{gd}	Gate-Drain Charge		---	2	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=30V , V_{GS} = 10V , R_L=3Ω R_{GEN} =1Ω , I_D=10A	---	25	---	ns
T_r	Rise Time		---	110	---	
$T_{d(off)}$	Turn-Off Delay Time		---	15	---	
T_f	Fall Time		---	7	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1200	---	pF
C_{oss}	Output Capacitance		---	540	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

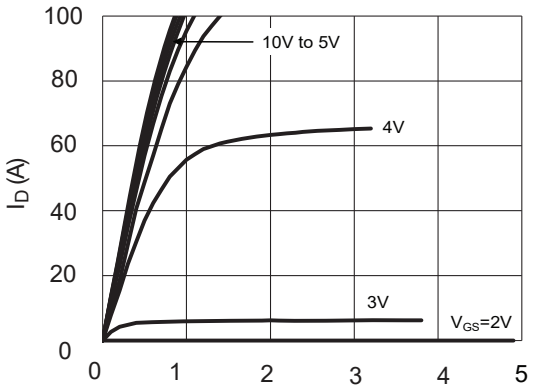
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	50	A
I_{SM}	Pulsed Source Current		---	---	200	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=20A , Tj=25℃	---	0.93	1.2	V

Notes:

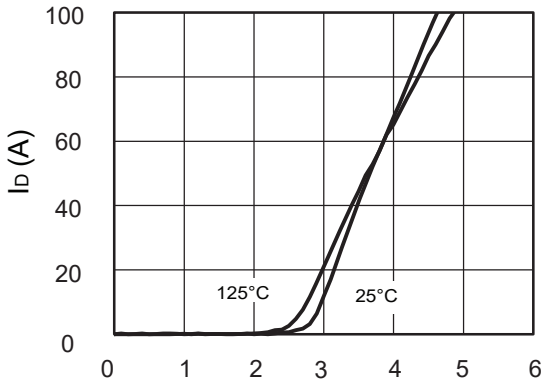
1.The EAS data shows Max. rating .The test condition is V_{DS}=30V , V_{GS}=10V , L=0.5mH , I_{AS}=14A.

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.

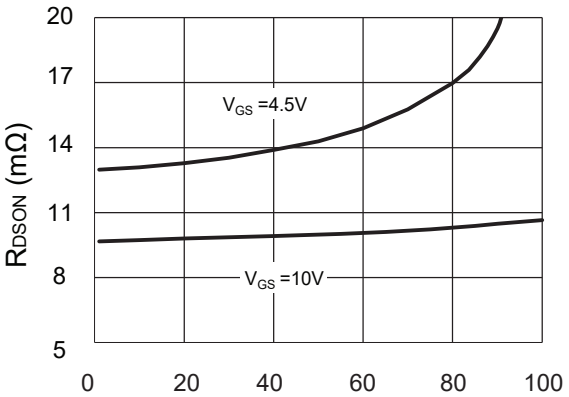
Typical Characteristics



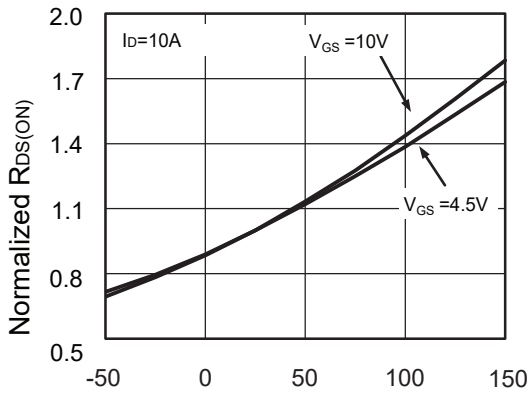
Output Characteristics



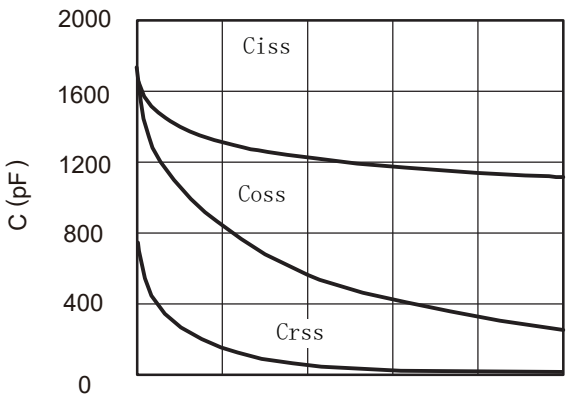
transfer characteristics



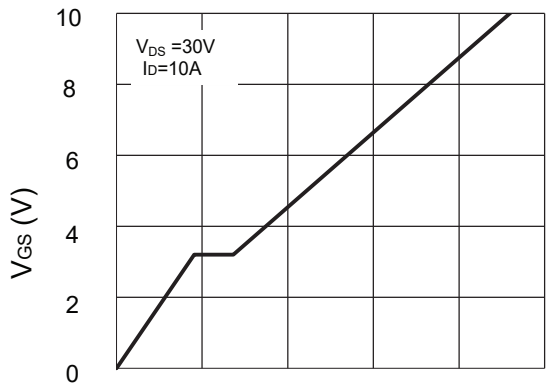
drain-source on-resistance



On-Resistance vs. Junction Temperature



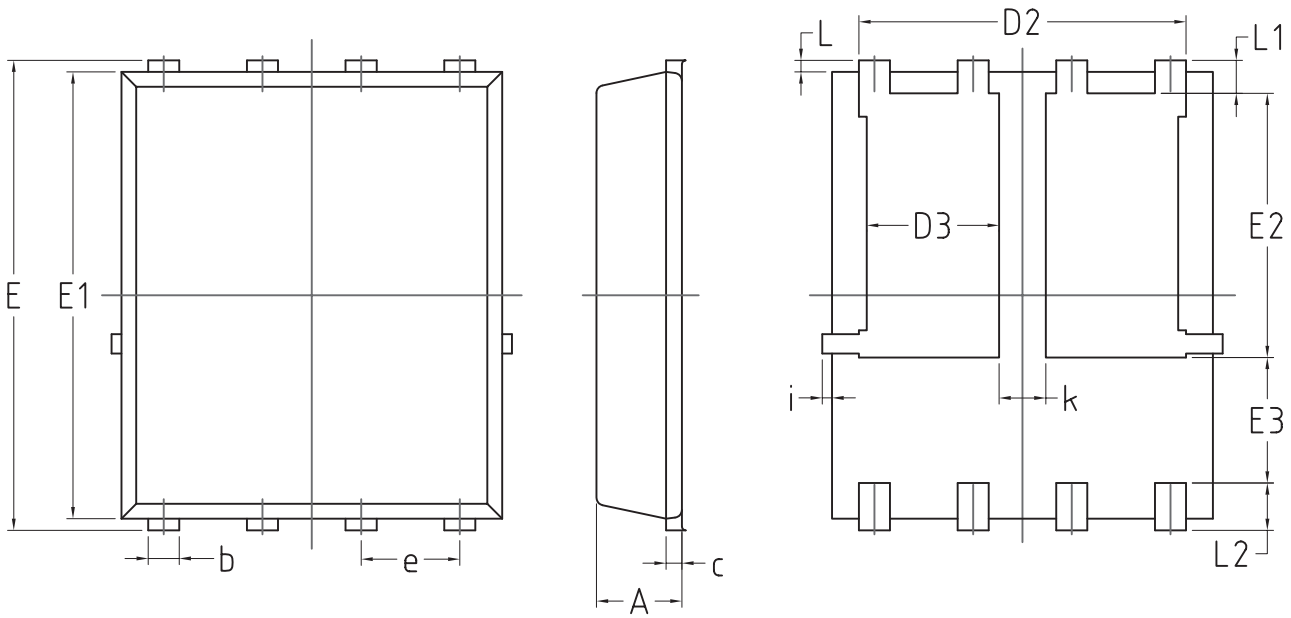
Capacitance Characteristics

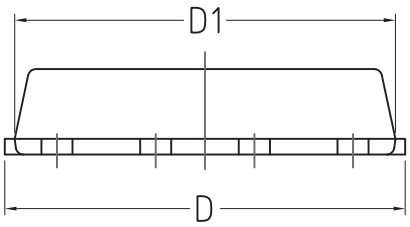


Gate charge vs gate-source voltage

Package Dimension

DFN-8 5X6 Dual Unit :mm





SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.203 BSC		0.0080 BSC	
D	4.80	5.40	0.1890	0.2126
D1	4.80	5.00	0.1890	0.1969
D2	4.11	4.31	0.1620	0.1700
D3	1.60	1.80	0.0629	0.0708
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	3.30	3.50	0.1300	0.1378
⚠2 E3	1.40	/	0.0551	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0019	0.0098
L1	0.38	0.50	0.0150	0.0197
⚠2 L2	0.38	0.71	0.0150	0.0280
i	/	0.18	/	0.0070
k	0.5	0.7	0.0197	0.0276