CMSA012DN06

60V, 11.3mΩ typ., 30A Dual N-Channel MOSFET

General Description

The CMSA012DN06 uses advanced process technology and design to provide excellent RDS(ON).

It can be used in a wide variety of applications.

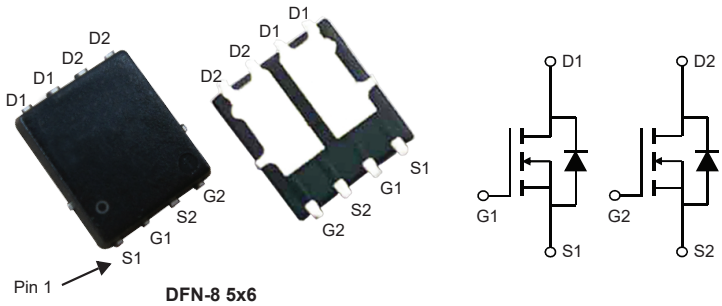
Product Summary

BVDSS	RDSON	ID
60V	13mΩ	30A

Applications

- DC-DC Converters
- Motors, lamps and solenoid control

DFN-8 5x6 Pin Configuration



DFN-8 5x6

Type	Package	Marking
CMSA012DN06	DFN-8 5x6	CMSA012DN06

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℃	Continuous Drain Current	30	A
I_D@T_C=100℃	Continuous Drain Current	21	A
I_{DM}	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy[1]	42	mJ
P_D@T_C=25℃	Total Power Dissipation	40	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	---	55	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	3.13	℃/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=20A	---	11.3	13	mΩ
		V_{GS}=4.5V , I_D=15A	---	18	21	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	1.0	---	3.0	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=10A	---	14	---	S
Q_g	Total Gate Charge	V_{DS}=30V , I_D=20A V_{GS}=10V	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	4.7	---	
Q_{gd}	Gate-Drain Charge		---	2.6	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=30V , V_{GS}=10V , R_L=1.5Ω R_{GEN} =3Ω	---	7	---	ns
T_r	Rise Time		---	4	---	
$T_{d(off)}$	Turn-Off Delay Time		---	23	---	
T_f	Fall Time		---	4	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	900	---	pF
C_{oss}	Output Capacitance		---	420	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

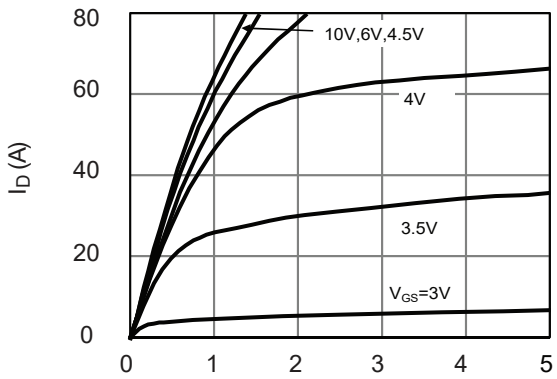
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	30	A
I_{SM}	Pulsed Source Current		---	---	120	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=20A , Tj=25℃	---	0.94	1.2	V

Note :

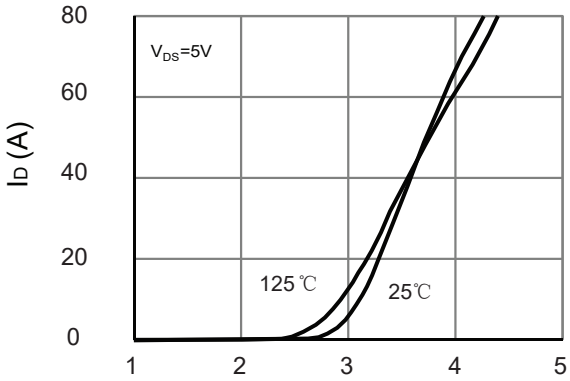
1.The EAS data shows Max. rating . The test condition is V_{DD}=30V , V_{GS}=10V , L=0.5mH , I_{AS}=13A.

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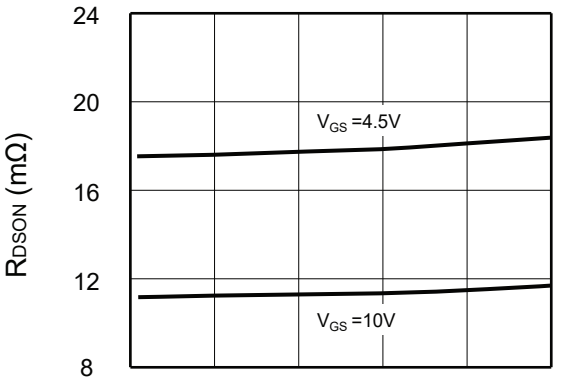
Typical Characteristics



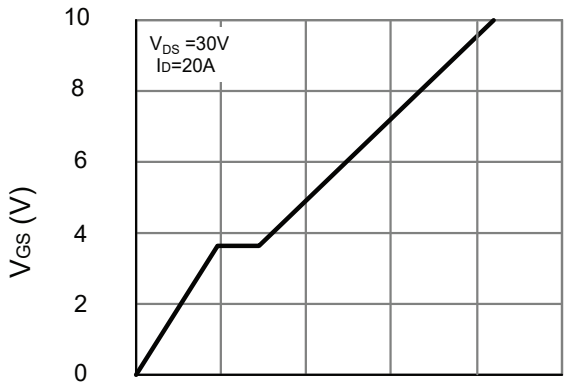
Output Characteristics



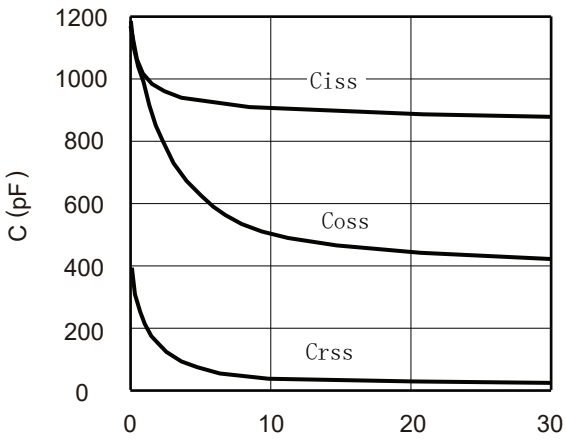
transfer characteristics



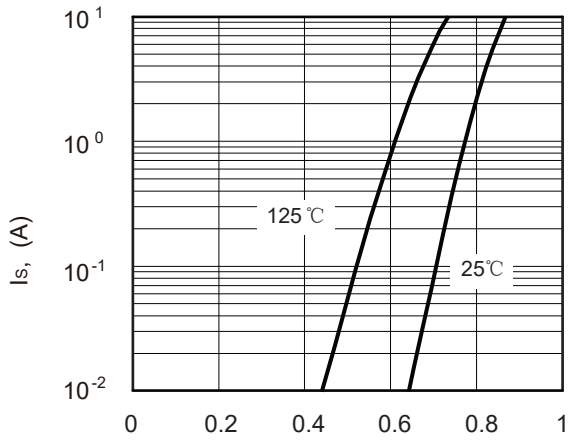
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics