CMSA30DN06

60V, 14mΩ typ., 30A Dual N-Channel MOSFET

General Description

The CMSA30DN06 uses advanced trench technology to provide excellent RDS (ON), This device is suitable for use in high performance automotive applications.

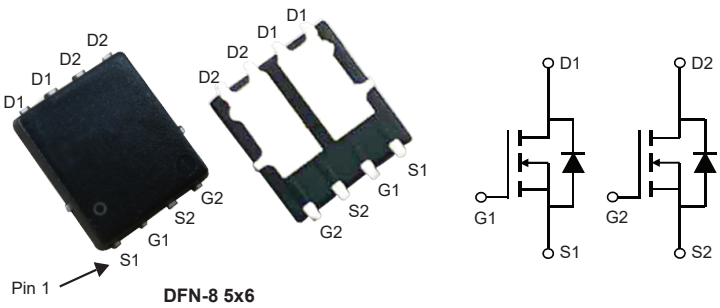
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
60V	16mΩ	30A

Applications

- Switching applications
- Motor Drive
- Automotive

DFN-8 5x6 Pin Configuration



DFN-8 5x6

Features

- Dual N-Channel MOSFET
- 100% avalanche tested
- Small Footprint (5x6mm) for Compact Design
- RoHS Compliant

Type	Package	Marking
CMSA30DN06	DFN-8 5x6	CMSA30DN06

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]	76	mJ
P_D@T_C=25℃	Total Power Dissipation	50	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(6 cm2 cooling area)	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.5	℃/W

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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=15A	---	14	16	mΩ
		V_{GS}=4.5V , I_D=10A	---	15	20	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	1	---	3	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}=5V , I_D=10A	---	23	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge	V_{DD}=30V , I_D=30A V_{GS}=10 V	---	34	---	nC
Q_{gs}	Gate-Source Charge		---	6	---	
Q_{gd}	Gate-Drain Charge		---	8.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=30V , V_{GEN}=10V , R_G=1Ω R_L =0.75Ω , I_D=30A	---	8	---	ns
T_r	Rise Time		---	13	---	
$T_{d(off)}$	Turn-Off Delay Time		---	22	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	2500	---	pF
C_{oss}	Output Capacitance		---	120	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	30	A
$I_{S,pulse}$	Diode pulse current		---	---	120	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=10A , Tj=25℃	---	0.83	1.25	V

Note :

1.The EAS data shows Max. rating . The test condition is V_{DD}=30V,V_{GS}=10V,L=0.5mH,I_{AS}=17.5A

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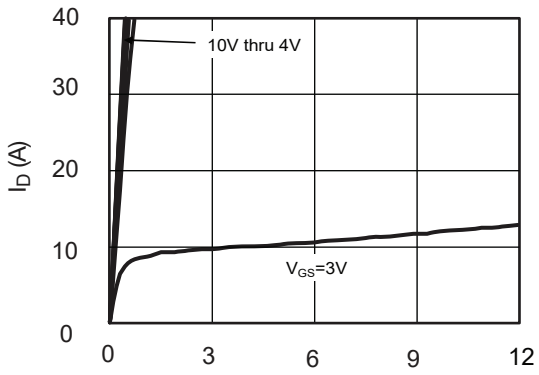
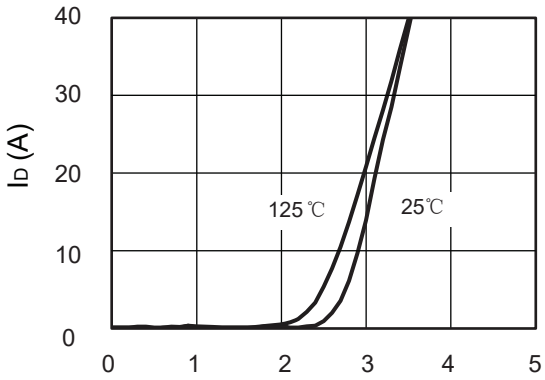
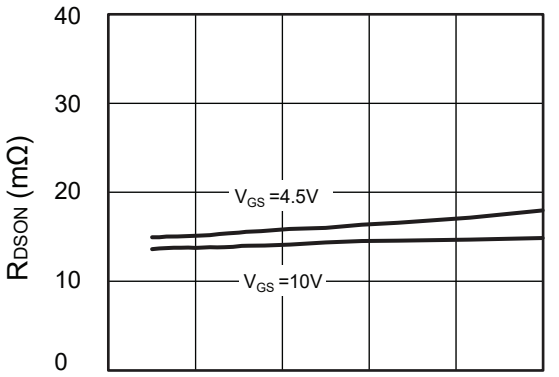
Typical Characteristics



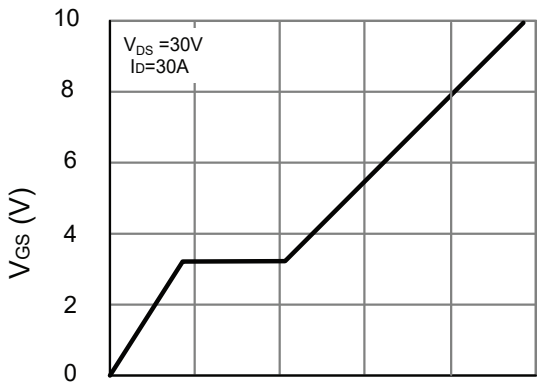
Output Characteristics



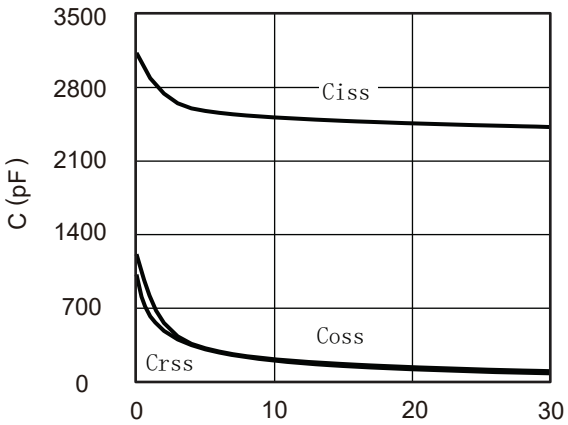
transfer characteristics



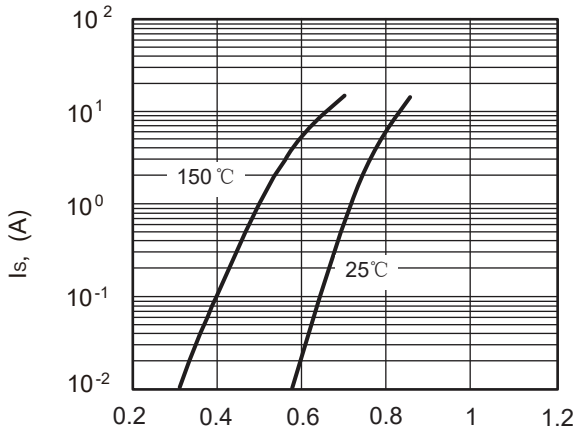
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics