

General Description

The CMSA3050 uses advanced trench technology to provide excellent $R_{DS(on)}$. This device is ideally suited for use as a high side switch in CPU core power conversion.

Features

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

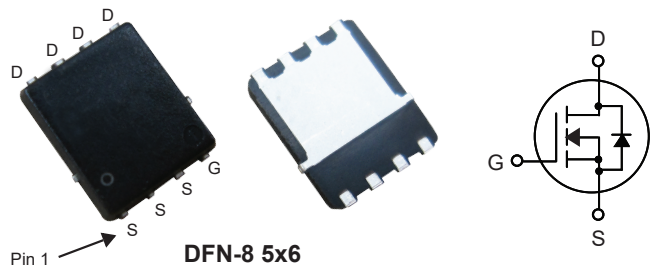
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	5mΩ	90A

Applications

- DC/DC Converter
- Load Switch
- CPU Power Delivery

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA3050	DFN-8 5x6	CMSA3050

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	90	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	63	A
I_{DM}	Pulsed Drain Current	360	A
EAS	Single Pulse Avalanche Energy ¹	113	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	85	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.47	°C/W

Electrical Characteristics(T_J=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =20A	---	4.6	5	mΩ
		V _{GS} =4.5V, I _D =10A	---	7.5	9	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1	---	3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V, V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =10A	---	15	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	7	---	Ω
Q _g	Total Gate Charge	I _D =20A V _{DS} =15V V _{GS} =4.5V	---	20	---	nC
Q _{gs}	Gate-Source Charge		---	4	---	
Q _{gd}	Gate-Drain Charge		---	8	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =15V V _{GS} =10V R _{GEN} =3Ω R _L =0.75Ω	---	6	---	ns
T _r	Rise Time		---	11	---	
T _{d(off)}	Turn-Off Delay Time		---	36	---	
T _f	Fall Time		---	12	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	1700	---	pF
C _{oss}	Output Capacitance		---	150	---	
C _{rss}	Reverse Transfer Capacitance		---	135	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	90	A
I _{SM}	Pulsed Source Current		---	---	360	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =20A, T _J =25°C	---	0.86	1.2	V

Note :

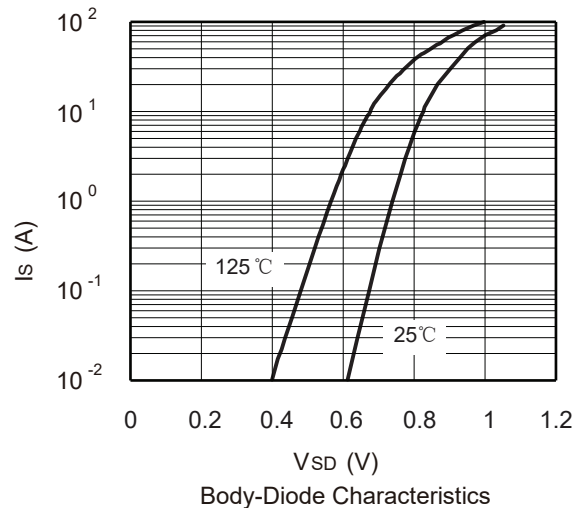
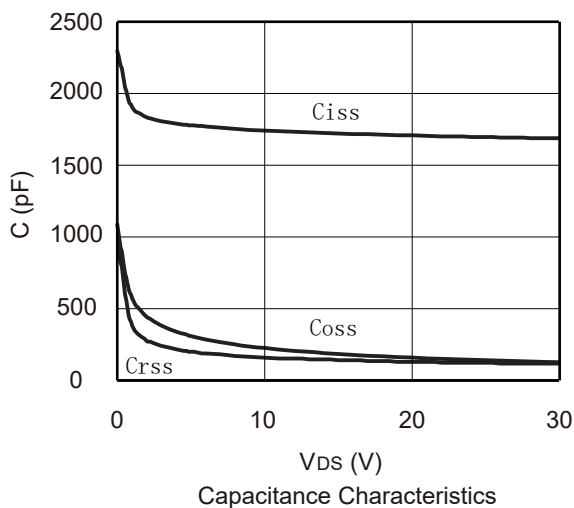
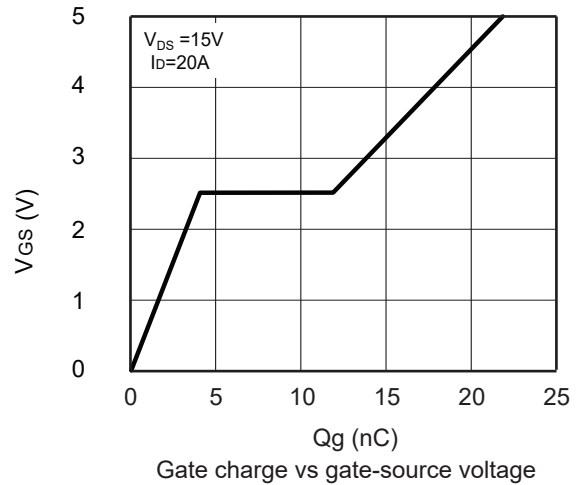
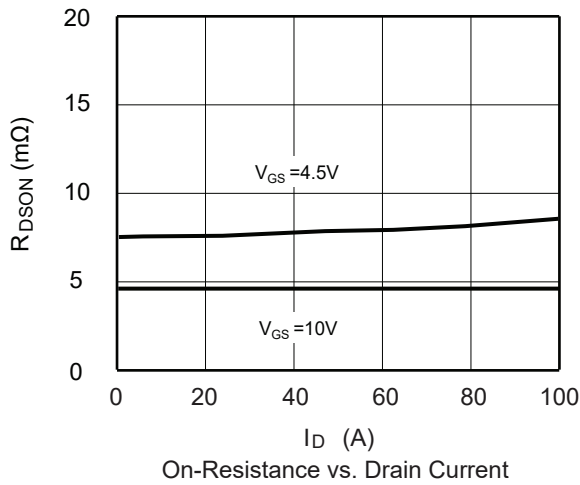
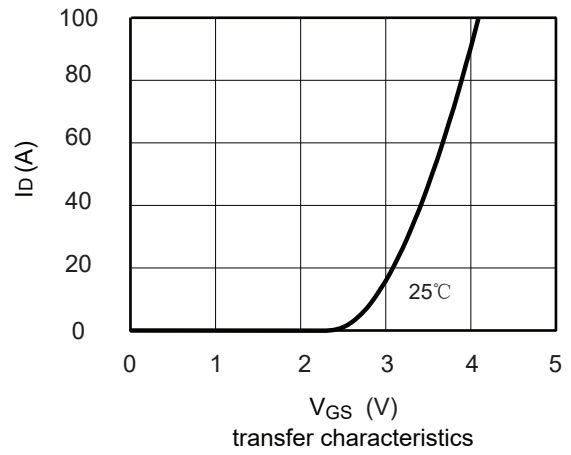
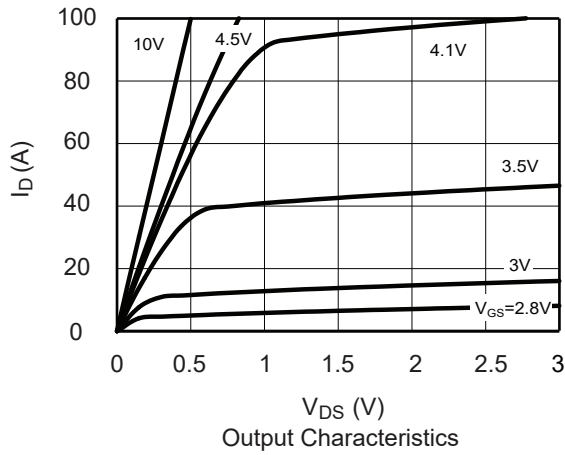
1.The EAS data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.5mH, I_{AS}=27.5A.

This product has been designed and qualified for the consumer market.

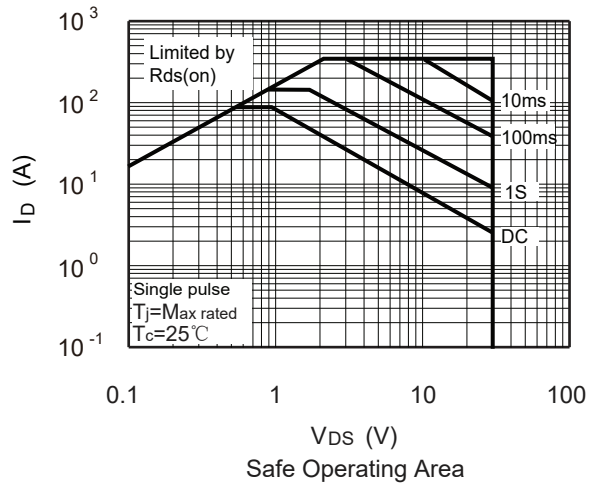
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Cmos reserves the right to improve product design, functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics



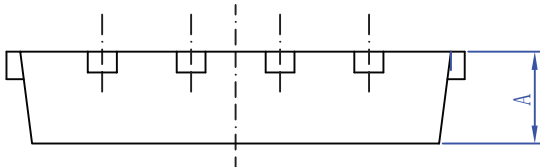
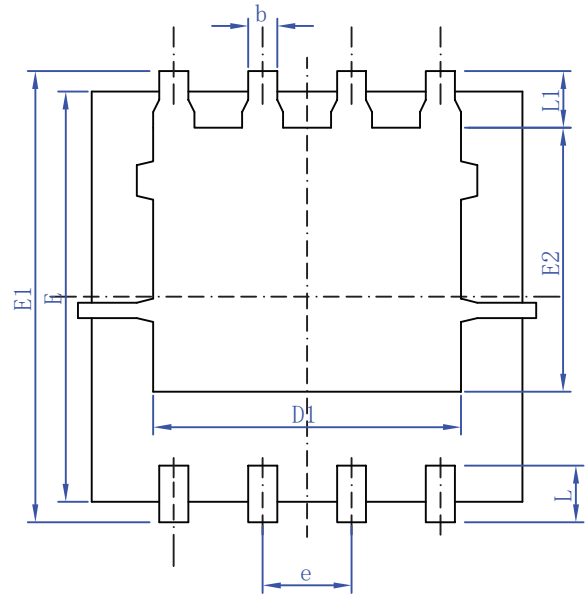
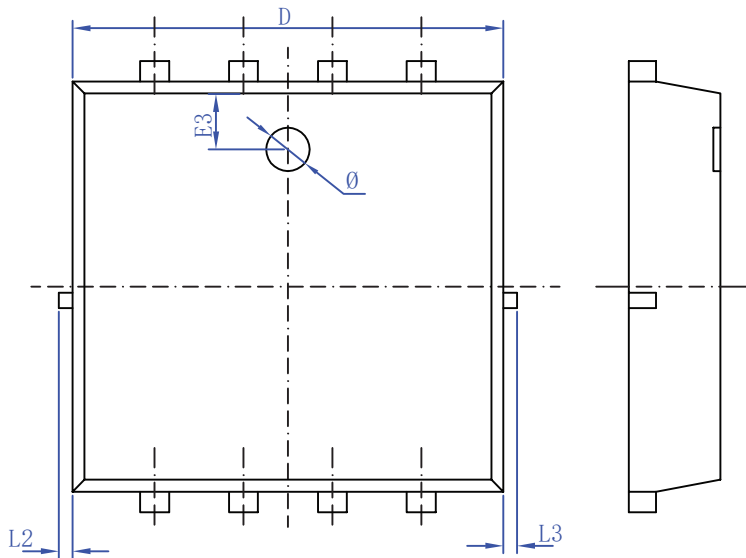
Typical Characteristics



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