

General Description

This N-Channel MOSFET is produced using an advanced SGT process that has been especially tailored to minimize the on-state resistance and yet maintain superior switching performance.

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	80	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	120	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	85	A
I_{DM}	Pulsed Drain Current	480	A
EAS	Single Pulse Avalanche Energy ¹	924	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ²	---	57	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1	$^\circ\text{C}/\text{W}$

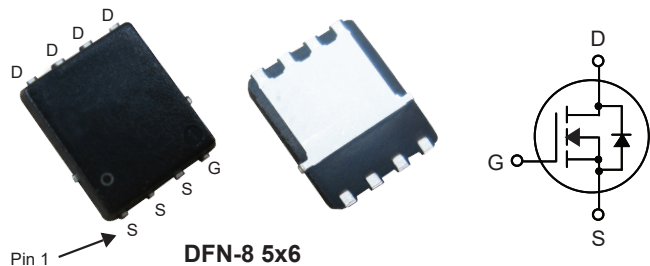
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
80V	2.7mΩ	120A

Applications

- Load Switch
- Synchronous Rectifier
- Motor Control Switch

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA030N08	DFN-8 5x6	CMSA030N08

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 =250μA	80	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =50A	---	2.4	2.7	mΩ
		V _{GS} =6V, I _D =30A	---	4.2	5.0	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V, 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} =10V, I _D =20A	---	29	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	1.3	---	Ω
Q _g	Total Gate Charge	I _D =50A	---	76	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =40V	---	23	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V (Note 3)	---	25	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =40V	---	17	---	ns
T _r	Rise Time	V _{GS} =10V	---	58	---	
T _{d(off)}	Turn-Off Delay Time	R _G =3.9Ω, R _L =0.8Ω	---	43	---	
T _f	Fall Time	I _D =50A (Note 3)	---	30	---	
C _{iss}	Input Capacitance	V _{DS} =40V, V _{GS} =0V, f=1MHz	---	4080	---	pF
C _{oss}	Output Capacitance		---	1080	---	
C _{rss}	Reverse Transfer Capacitance		---	40	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	120	A
I _{SM}	Pulsed Source Current		---	---	480	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =50A, T _J =25°C	---	0.85	1.3	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	62	---	ns
Q _{rr}	Reverse Recovery Charge	V _{GS} =0V, I _{DS} =50A (Note 3)	---	75	---	nC

Note :

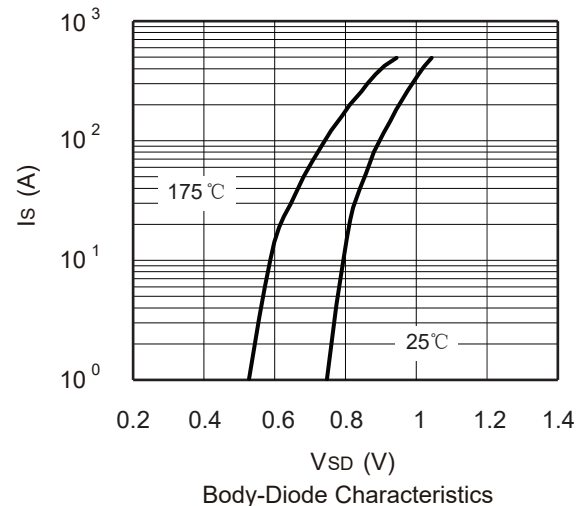
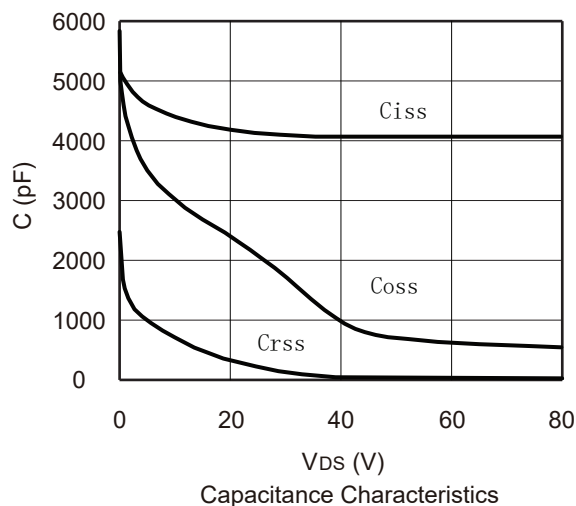
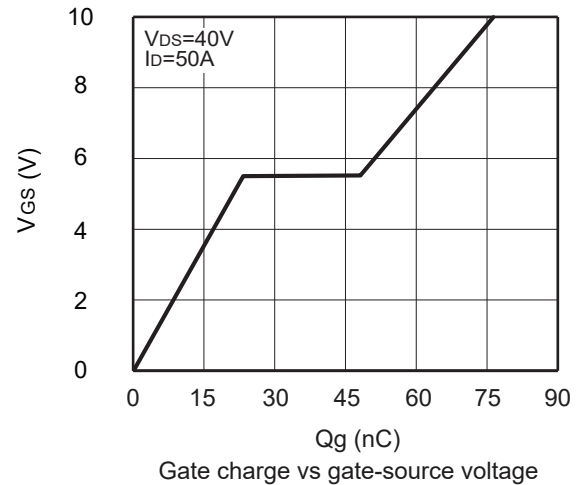
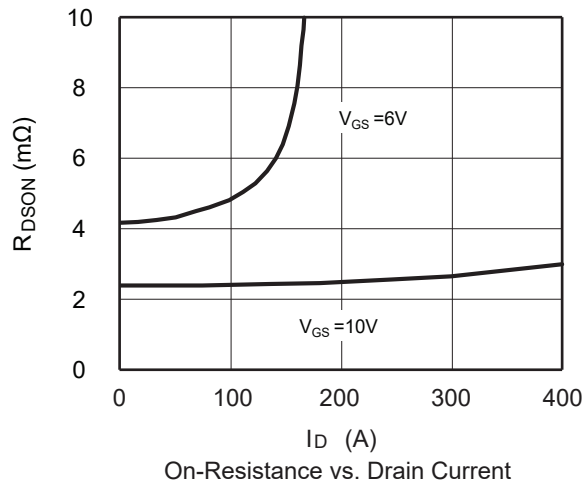
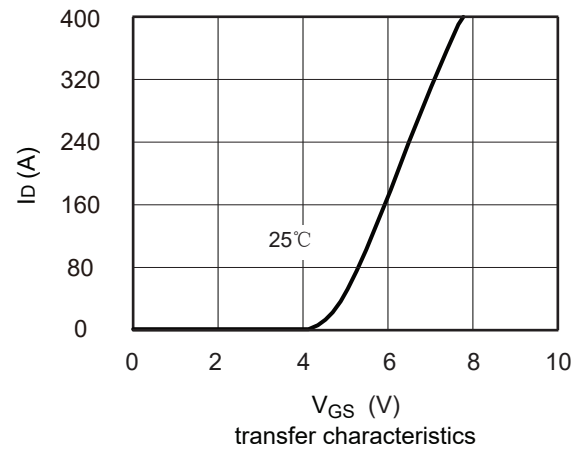
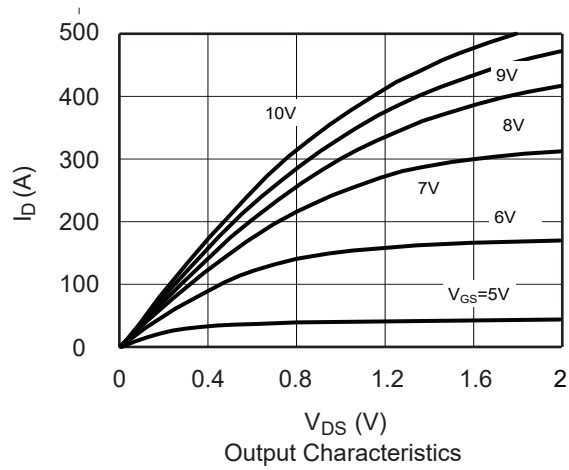
- 1.The EAS data shows Max. rating . The test condition is V_{DD}=50V, V_{GS}=10V, L=1mH, I_{AS}=43A.
- 2.Surface Mounted on 1 in² pad area, t_s≤10 sec.
- 3.Guaranteed by design, not subject to production testing.

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

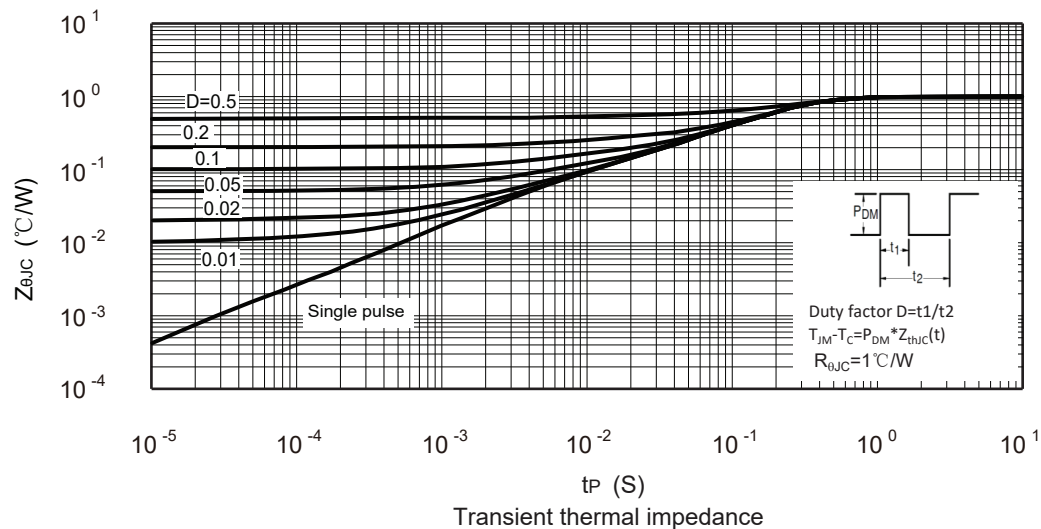
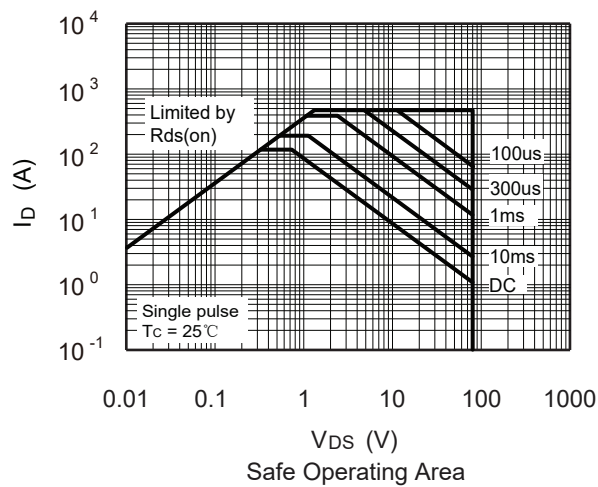
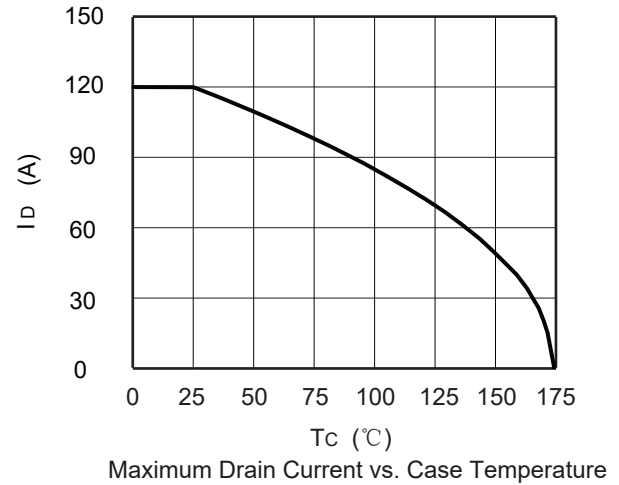
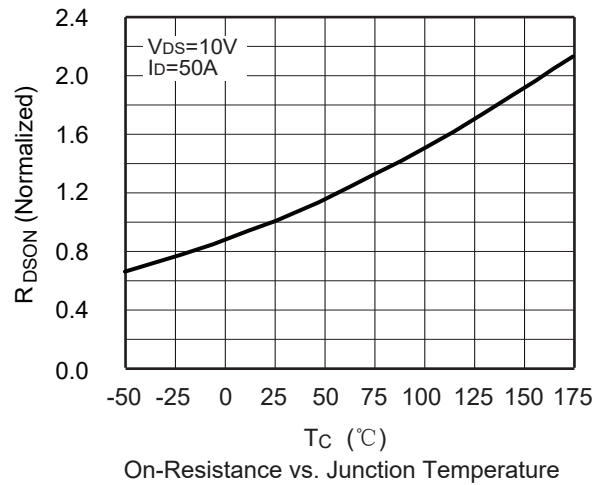
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Cmos reserves the right to improve product design, functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics



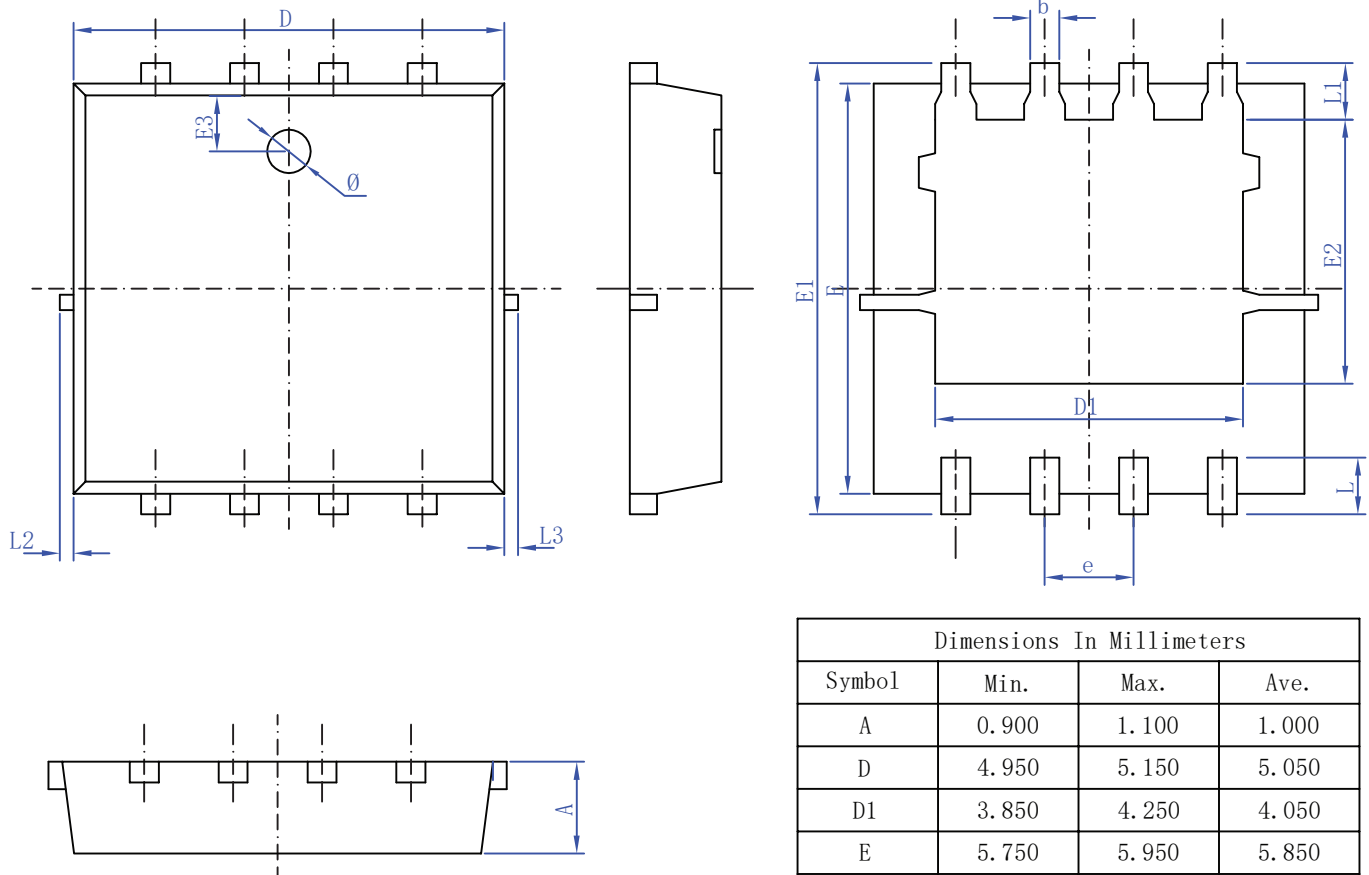
Typical Characteristics



Package Dimension

DFN-8 5x6

Unit :mm



注:

1. 未注公差 ± 0.05 未标注圆角 $R_{\max}=0.25$

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		