

General Description

The CN1R5N04M uses advanced SGT technology to provide excellent RDS(ON). This is suitable device for Synchronous Rectification for Server and general purpose applications.

Features

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

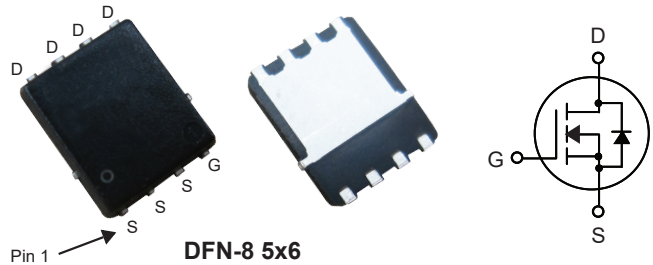
Product Summary

BVDSS	R _{DS(on)} max.	ID
40V	1.05mΩ	200A

Applications

Chargers
Synchronous Rectification in DC/DC and AC/DC Converters

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CN1R5N04M	DFN-8 5x6	CN1R5N04M

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	200	A
I _D @T _C =100°C	Continuous Drain Current	140	A
I _{DM}	Pulsed Drain Current	800	A
EAS	Single Pulse Avalanche Energy ¹	1296	mJ
P _D @T _C =25°C	Total Power Dissipation	180	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 _{θJA}	Thermal Resistance Junction-ambient(Steady-State)	---	55	°C/W
R _{θJC}	Thermal Resistance Junction-case(Steady-State)	---	0.69	°C/W

Electrical Characteristics(T =25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	40	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =40A	---	0.8	1.05	mΩ
		V _{GS} =4.5V , I _D =20A	---	1	1.3	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.0	---	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =40V , 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	---	55	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	2.0	---	Ω
Q _g	Total Gate Charge	I _D =50A V _{DS} =20V V _{GS} =10V (Note 2)	---	148	---	nC
Q _{gs}	Gate-Source Charge		---	26	---	
Q _{gd}	Gate-Drain Charge		---	25	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =20V V _{GS} =10V R _{GEN} =4.5ΩR _L =0.75Ω , I _{DS} =50A (Note 2)	---	20	---	ns
T _r	Rise Time		---	85	---	
T _{d(off)}	Turn-Off Delay Time		---	150	---	
T _f	Fall Time		---	130	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	7000	---	pF
C _{oss}	Output Capacitance		---	1350	---	
C _{rss}	Reverse Transfer Capacitance		---	110	---	

Diode Characteristics

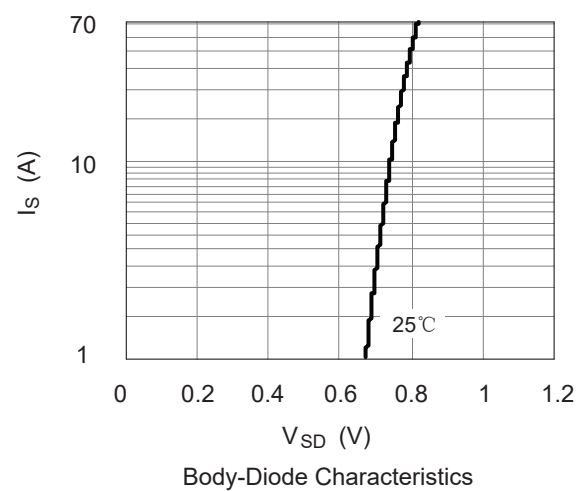
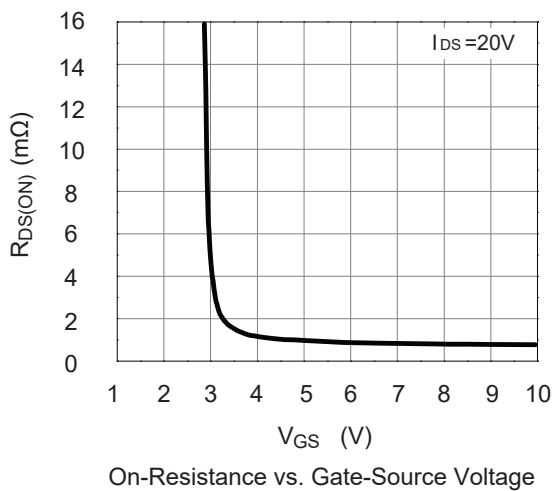
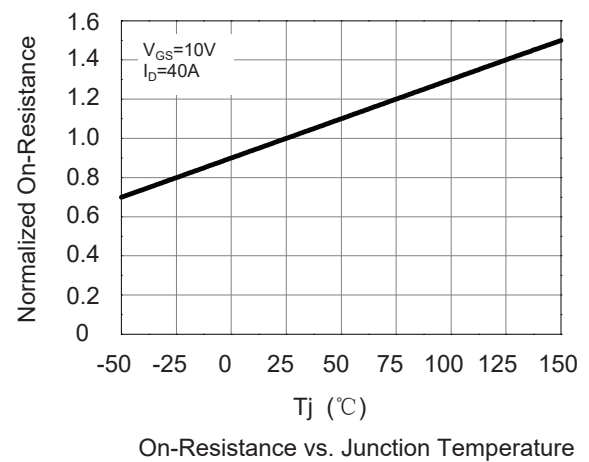
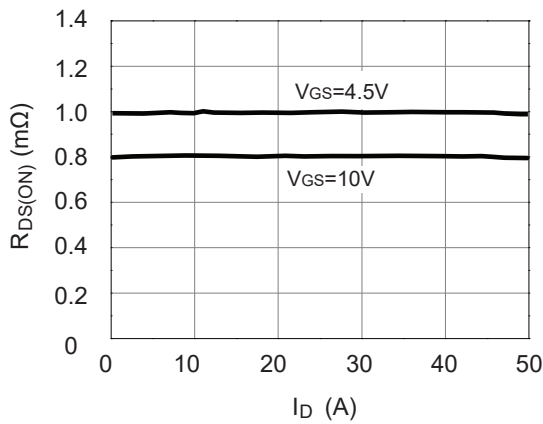
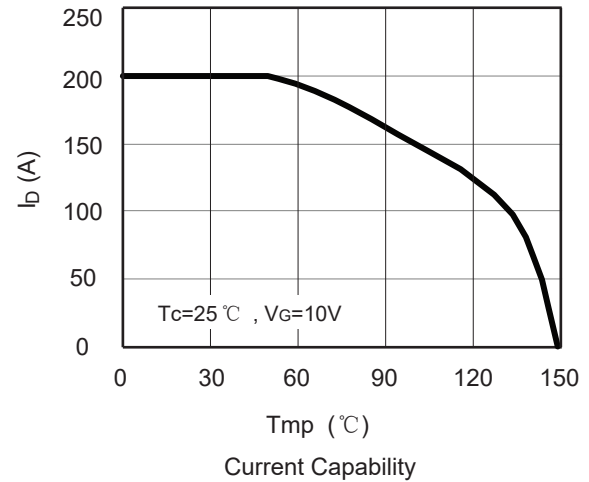
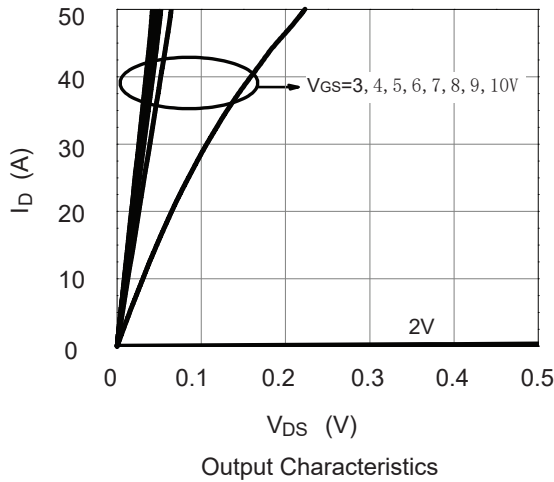
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	200	A
I _{SM}	Pulsed Source Current		---	---	800	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =40A , T _J =25℃	---	0.79	1.2	V

Note :

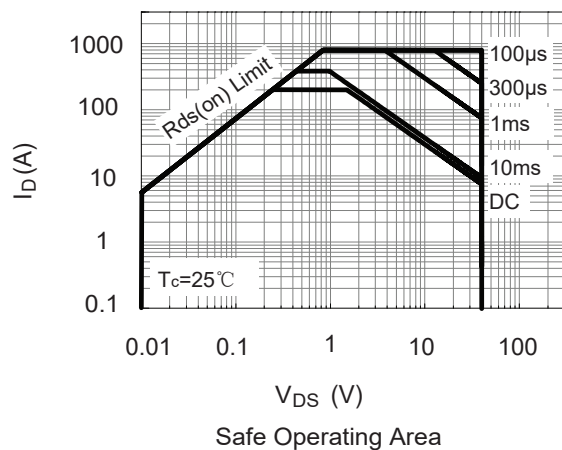
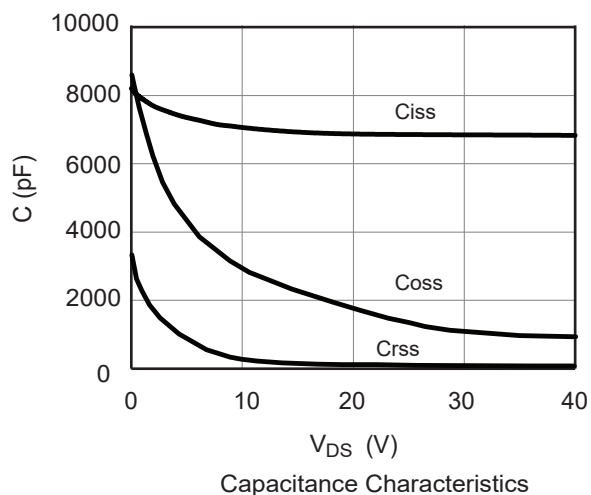
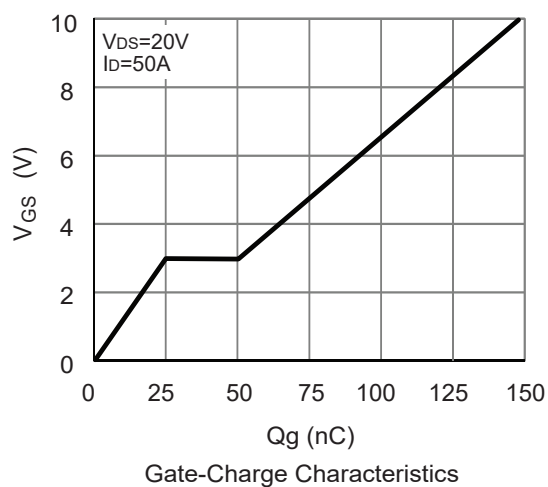
- 1.The EAS data shows Max. rating . The test condition is V_{DD}=30V , V_{GS}=10V , L=0.5mH , I_{AS}=72A.
- 2.Guaranteed by design, not subject to production testing.

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Typical Characteristics



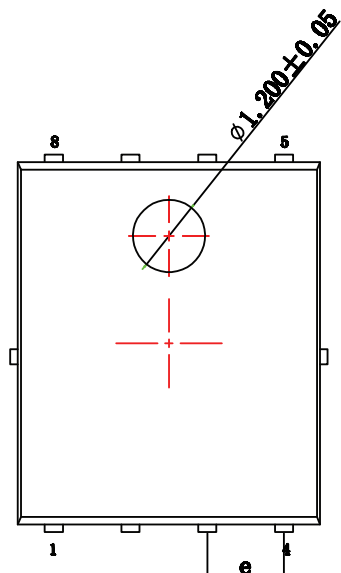
Typical Characteristics



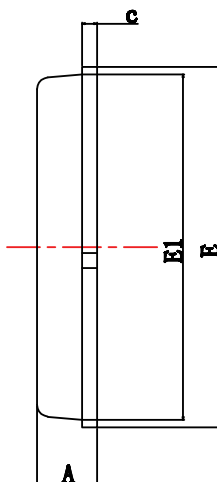
Package Dimension

DFN-8 5x6

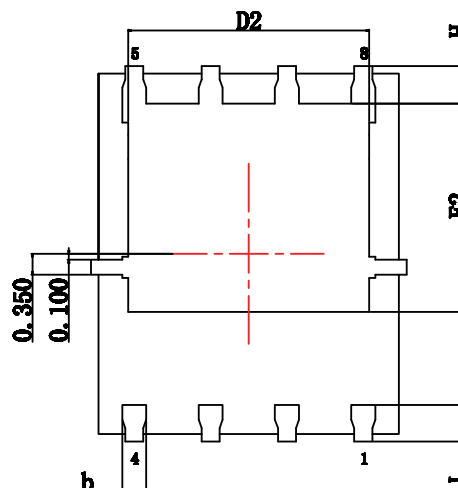
Unit :mm



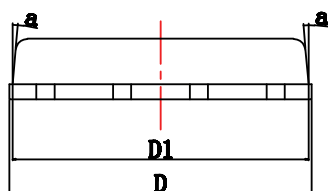
Top View



Side View



Bottom View



Front View

symbol	Dimension in mm		
	MIN	NOM	MAX
A	0.900	1.000	1.100
b	0.330	0.400	0.510
c	0.200	0.250	0.300
D	4.820	5.020	5.220
D2	4.1	4.2	4.3
E	5.900	6.000	6.100
E1	5.700	5.750	5.800
E2	3.45	3.55	3.65
e	—	1.270	—
H	0.520	0.625	0.720
D1	4.800	4.900	5.000
L	0.510	0.610	0.710
a	0°	—	10°
N	8		
MD/ME	4/2		

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