

General Description

The CMA40N20P uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

These devices are well suited for high efficiency switched mode power supplies, active power factor correction based on half bridge topology.

Features

- Low on-resistance
- Fast Switching
- RoHS Compliant

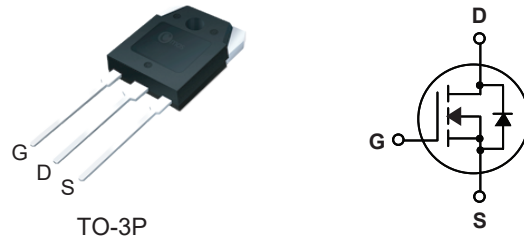
Product Summary

BVDSS	R _{DS(on)} max.	ID
200V	65mΩ	40A

Applications

- DC-AC converters
- SMPS Power
- UPS (Uninterruptible Power Supply)

TO-3P Pin Configuration



Type	Package	Marking
CMA40N20P	TO-3P	CMA40N20P

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	200	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	40	A
I _D @T _C =100°C	Continuous Drain Current	32	A
I _{DM}	Pulsed Drain Current ¹	160	A
EAS	Single Pulse Avalanche Energy ²	1050	mJ
P _D @T _C =25°C	Total Power Dissipation	280	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	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.45	°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	200	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =20A	---	---	65	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =200V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance ³	V _{DS} =20V , I _D =15A	---	23	---	S
Q _g	Total Gate Charge	I _D =20A	---	63	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} = 100V	---	17	---	
Q _{gd}	Gate-Drain Charge	V _{GS} = 10V (Note 3, 4)	---	19	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} = 100V	---	43	---	ns
T _r	Rise Time	I _D =20A	---	27	---	
T _{d(off)}	Turn-Off Delay Time	R _G =25Ω	---	156	---	
T _f	Fall Time	(Note 3, 4)	---	33	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	3400	---	pF
C _{oss}	Output Capacitance		---	400	---	
C _{riss}	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	---	---	40	A
I _{SM}	Pulsed Source Current		---	---	160	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =20A , T _J =25°C	---	0.84	1.4	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	185	---	ns
Q _{rr}	Reverse Recovery Charge	V _{GS} =0V , I _{SD} =20A	---	1.2	---	μC

Note :

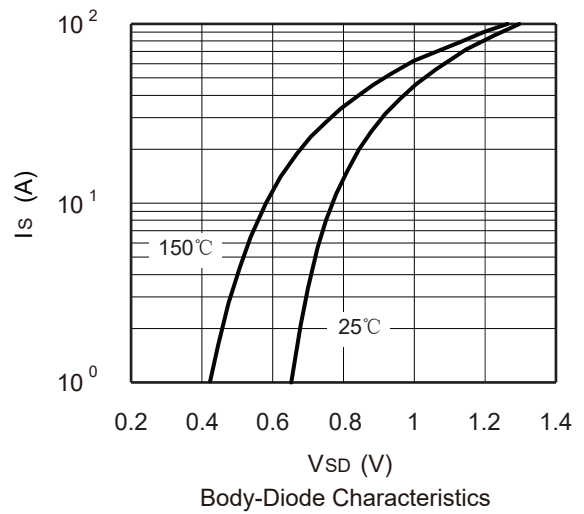
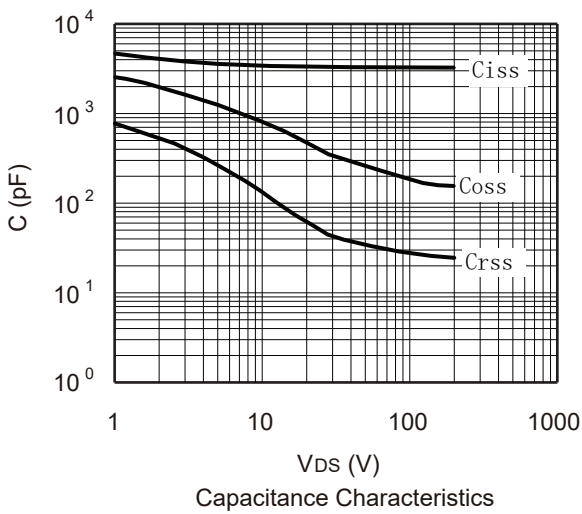
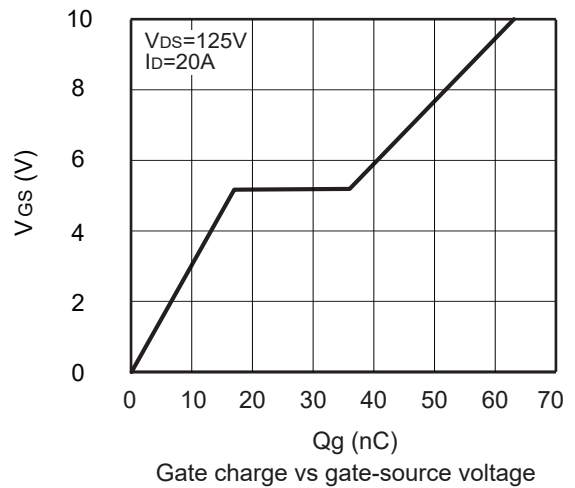
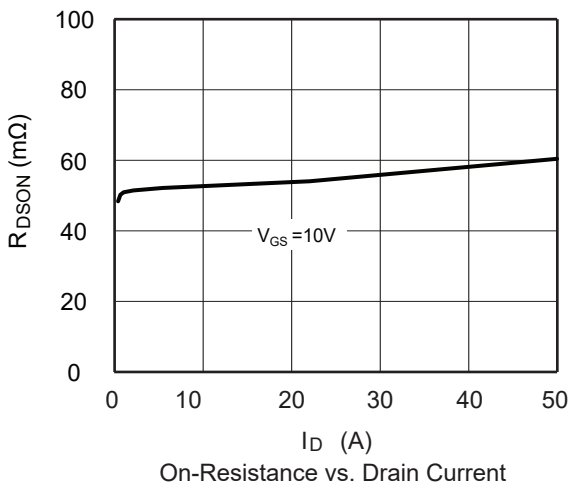
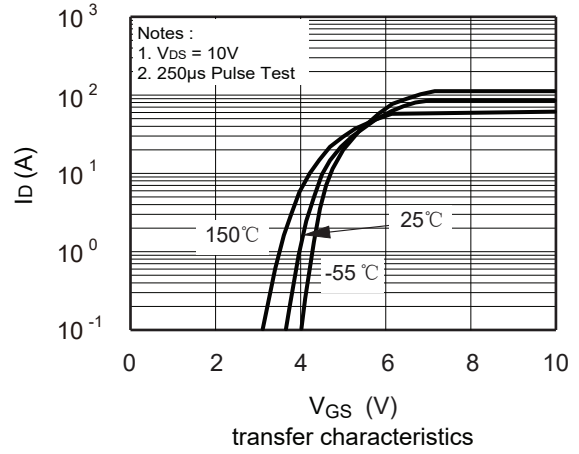
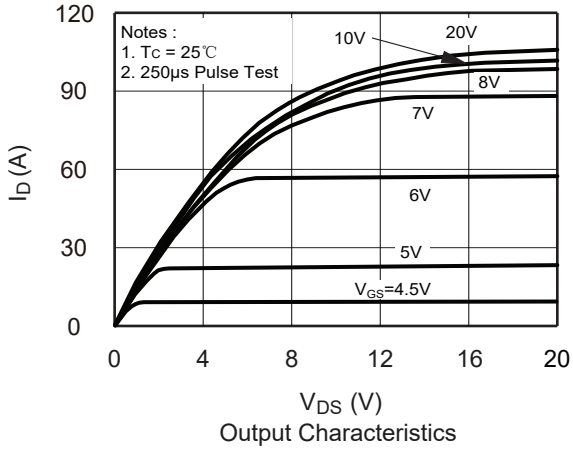
- 1.Repetitive Rating: Pulse width limited by maximum junction temperature
- 2.L = 1mH, I_D = 40A, V_{DD} = 50V, Starting T_J = 25 °C
- 3.Pulse Test: Pulse width≤300μs, Duty Cycle≤2%
- 4.Essentially Independent of Operating Temperature

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

Cmos assumes no liability for customers' product design or applications.

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

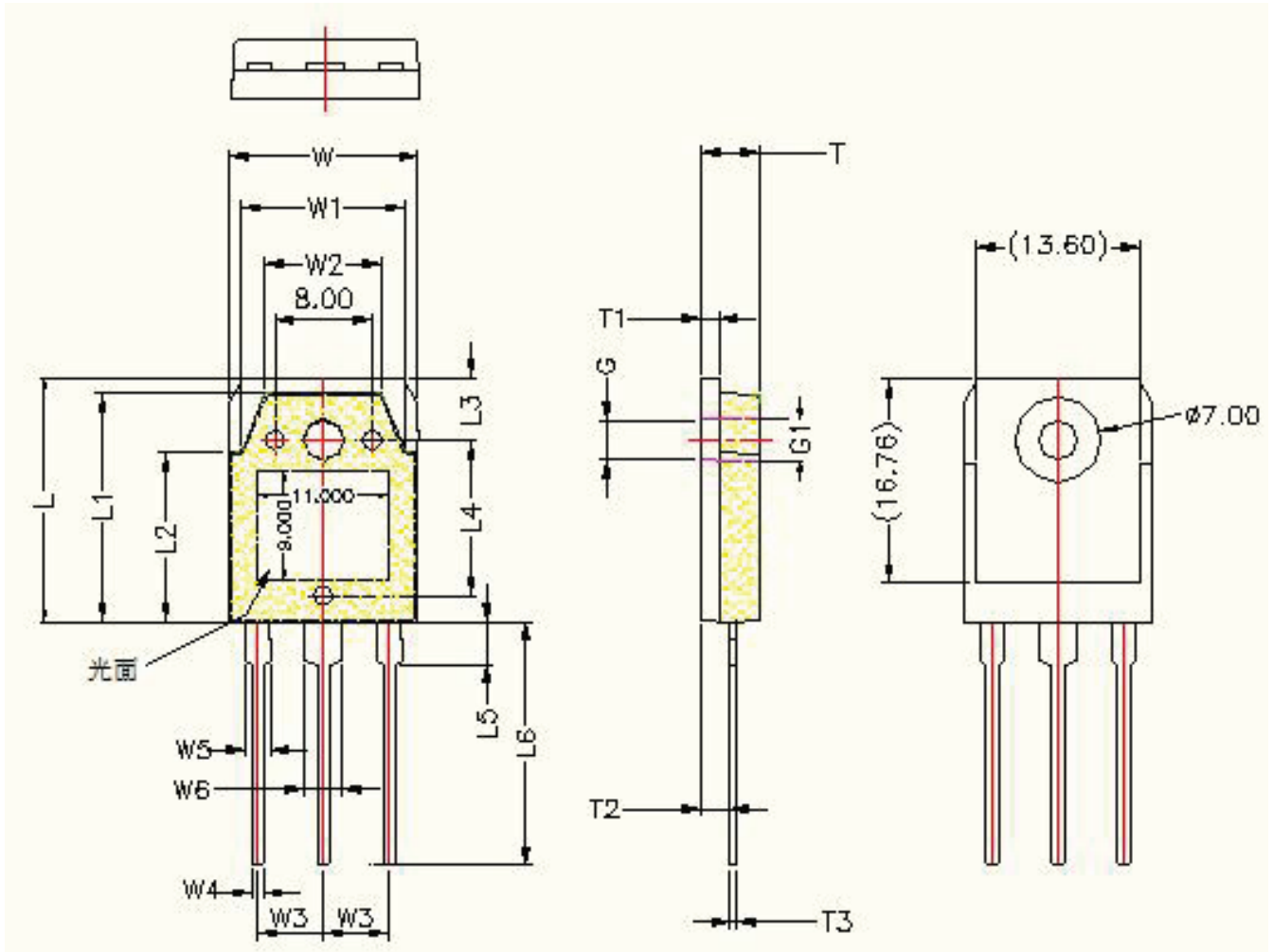
Typical Characteristics



Package Dimension

TO-3P

Unit :mm



Symbol	Dimensions	Symbol	Dimensions	Symbol	Dimensions
W	15.60±0.3	L	19.90±0.3	T	4.80±0.3
W1	13.60±0.3	L1	18.70±0.3	T1	1.50±0.3
W2	9.60±0.3	L2	13.90±0.3	T2	2.40±0.3
W3	5.45(TYP)	L3	5.00±0.3	T3	0.60±0.3
W4	1.00±0.3	L4	12.76±0.3	G	Ø3.25±0.3
W5	2.10±0.2	L5	3.50±0.3	G1	Ø3.58±0.3
W6	3.10±0.2	L6	20.00±0.3		