

CMD80N02/CMU80N02

20V, 6mΩ typ., 80A N-Channel MOSFET

General Description

The 80N02 uses advanced trench technology to provide excellent $R_{DS(on)}$.

This universal technology is well suited for PWM, load switching and general purpose applications.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

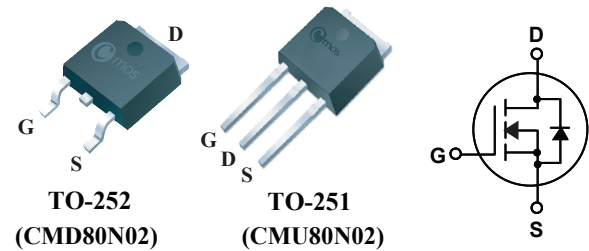
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
20V	6.8mΩ	80A

Applications

- DC/DC Converters

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	80	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	55	A
I_{DM}	Pulsed Drain Current	320	A
EAS	Single Pulse Avalanche Energy ¹	72	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	55	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(Steady-State)	---	43	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.27	°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	20	---	---	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =28A	---	6	6.8	mΩ
		V _{GS} =4.5V, I _D =25A	---	6.4	7.3	
		V _{GS} =2.5V, I _D =20A	---	7.8	9	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.5	---	1.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =20V, V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±12V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =10A	---	23	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	2.5	---	Ω
Q _g	Total Gate Charge	I _D =20A	---	26	---	nC
Q _{gs}	Gate-Source Charge	V _{DD} =10V	---	6	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =5V	---	11	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =10V V _{GS} =5V, R _L =0.5Ω R _G =3.3Ω, I _D =18A	---	23	---	ns
T _r	Rise Time		---	56	---	
T _{d(off)}	Turn-Off Delay Time		---	70	---	
T _f	Fall Time		---	16	---	
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	---	1300	---	pF
C _{oss}	Output Capacitance		---	150	---	
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	---	---	80	A
I _{SM}	Pulsed Source Current		---	---	320	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =28A, T _J =25°C	---	0.93	1.2	V

Note :

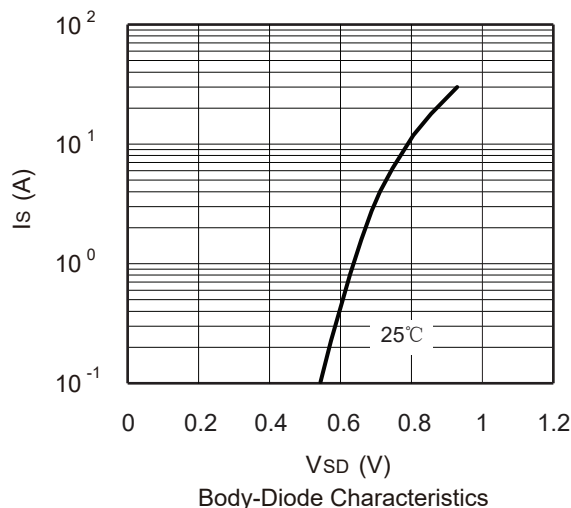
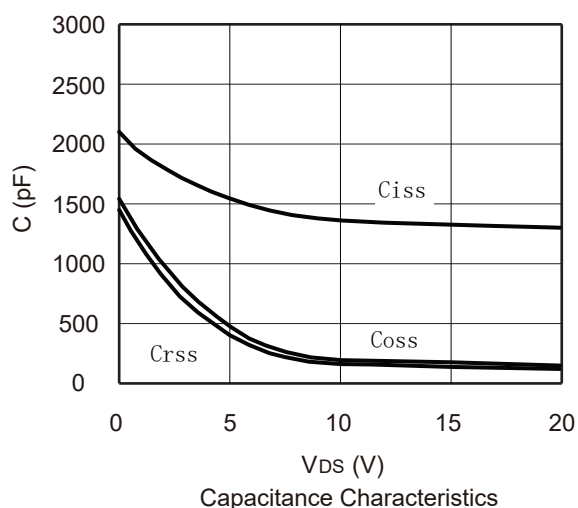
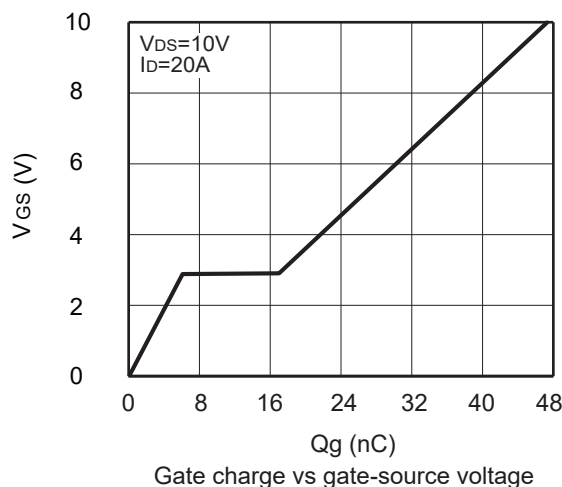
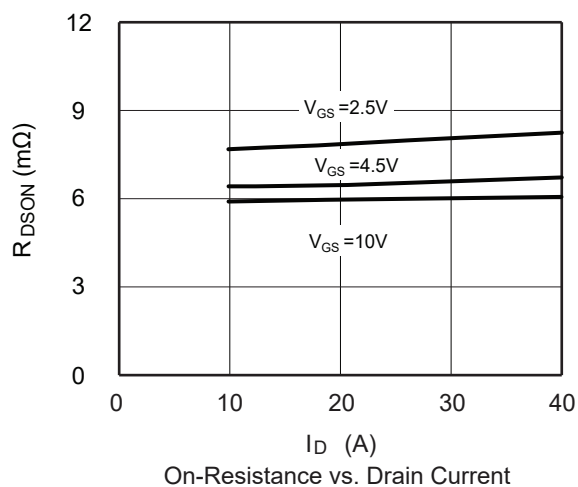
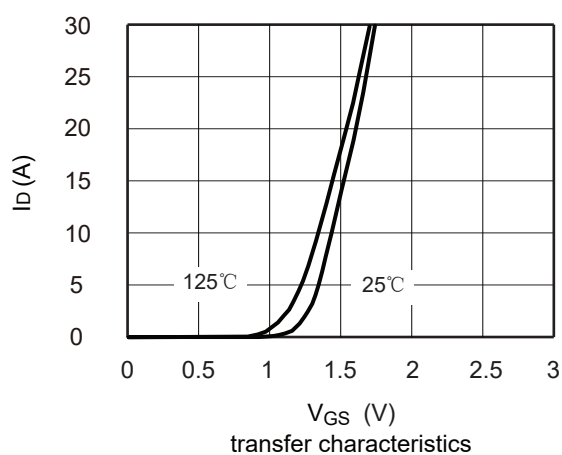
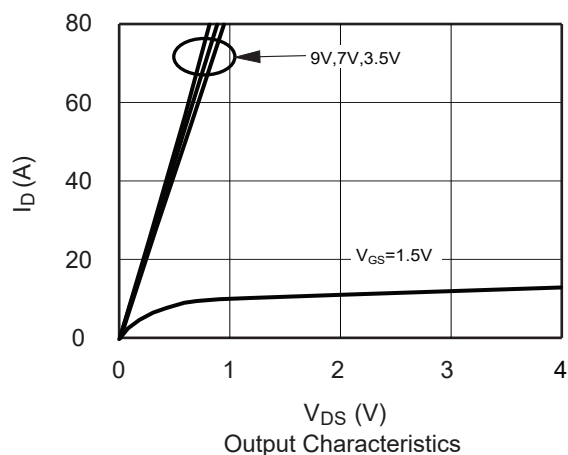
1.The EAS data shows Max. rating . The test condition is V_{DD}=20V, V_{GS}=10V, L=0.5mH, I_{AS}=17A.

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.

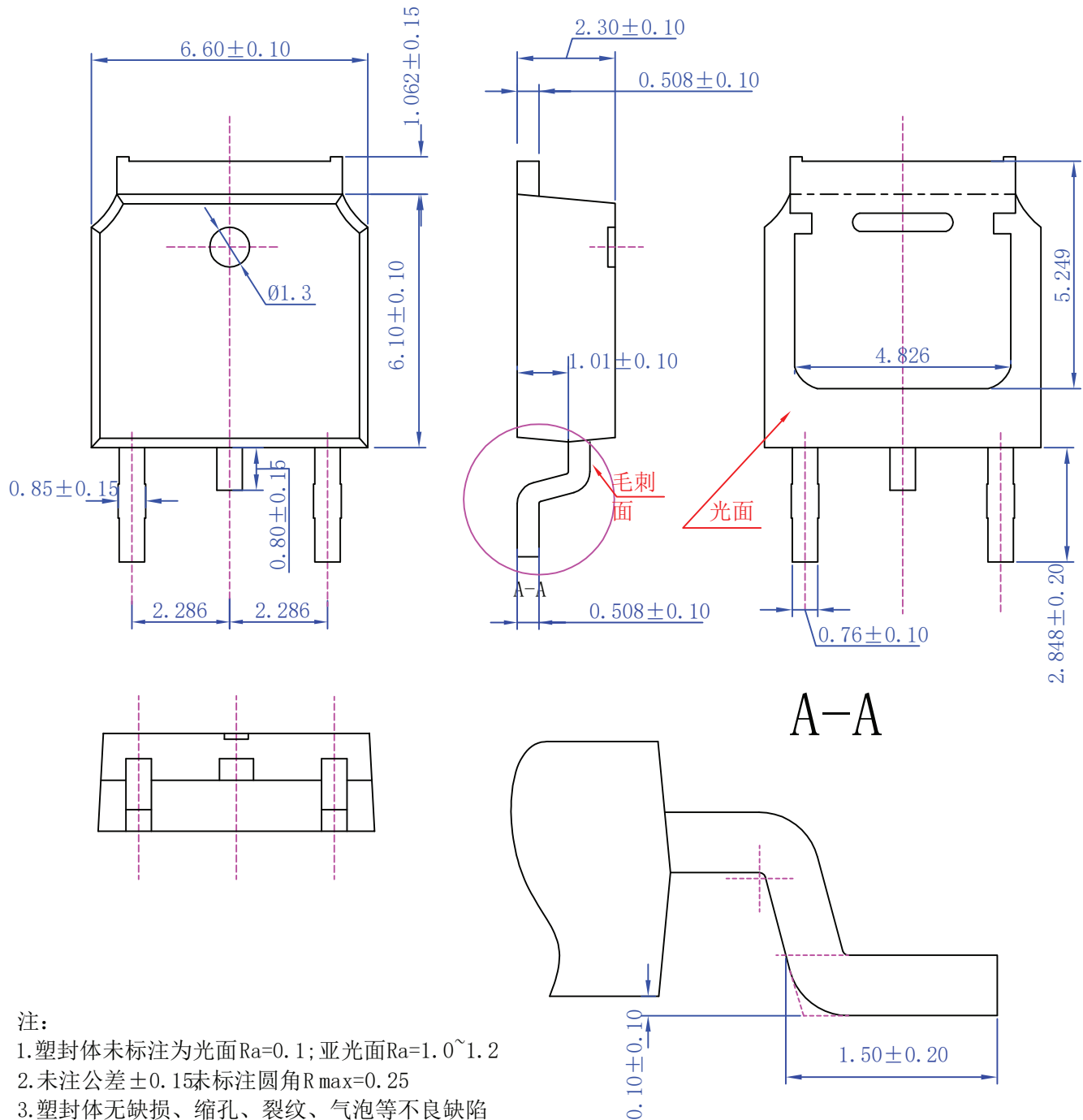
Typical Characteristics



Package Dimension

TO-252

Unit :mm



注:

1. 塑封体未标注为光面 $Ra=0.1$; 亚光面 $Ra=1.0 \sim 1.2$
2. 未注公差 ± 0.15 未标注圆角 $R_{max}=0.25$
3. 塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
4. 标注单位mm
5. 顶针孔不允许凸出塑封体表面

Package Dimension

TO-251A

Unit :mm

