

# CMD180N10/CMU180N10

100V, 16mΩ typ., 50A N-Channel MOSFE

## General Description

The 180N10 uses advanced SGT technology to provide excellent  $R_{DS(on)}$ . This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

## Features

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

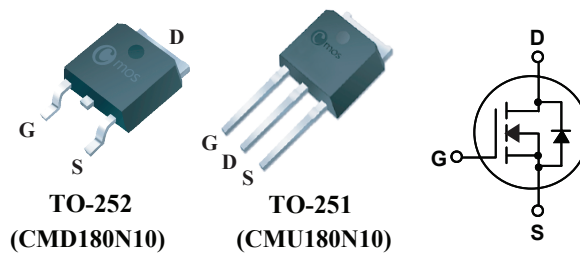
## Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	18mΩ	50A

## Applications

- High Frequency Switching and Synchronous Rectification

## TO-252/251 Pin Configuration



## Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	100	V
$V_{GS}$	Gate-Source Voltage	±20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	35	A
$I_{DM}$	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy <sup>1</sup>	98	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	100	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(min. footprint)	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.25	°C/W

### Electrical Characteristics(T<sub>J</sub>=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	100	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =20A	---	16	18	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	2.0	---	4.0	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V	---	---	1	μA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =20A	---	13	---	S
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, f=1MHz	---	0.5	---	Ω
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> =25A	---	25	---	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =50V	---	9	---	
Q <sub>gd</sub>	Gate-Drain Charge	V <sub>GS</sub> =0 to 10V	---	6	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =50V V <sub>GS</sub> =10V R <sub>G</sub> =1.6Ω, I <sub>D</sub> =25A	---	16	---	ns
T <sub>r</sub>	Rise Time		---	22	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	18	---	
T <sub>f</sub>	Fall Time		---	5	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz	---	800	---	pF
C <sub>oss</sub>	Output Capacitance		---	490	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	50	---	

### Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	50	A
I <sub>SM</sub>	Pulsed Source Current		---	---	200	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =20A, T <sub>J</sub> =25°C	---	0.9	1.2	V

Note :

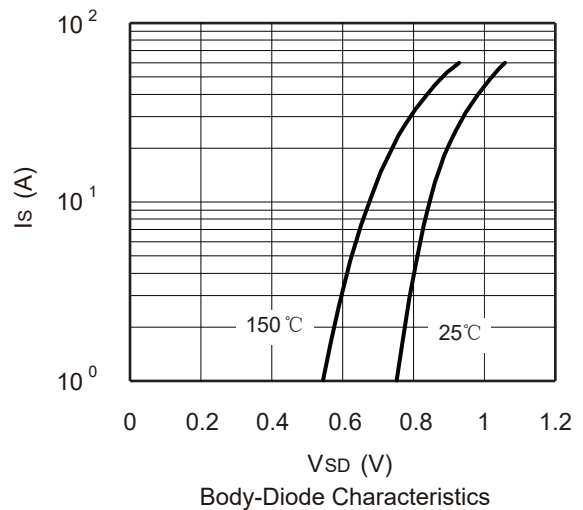
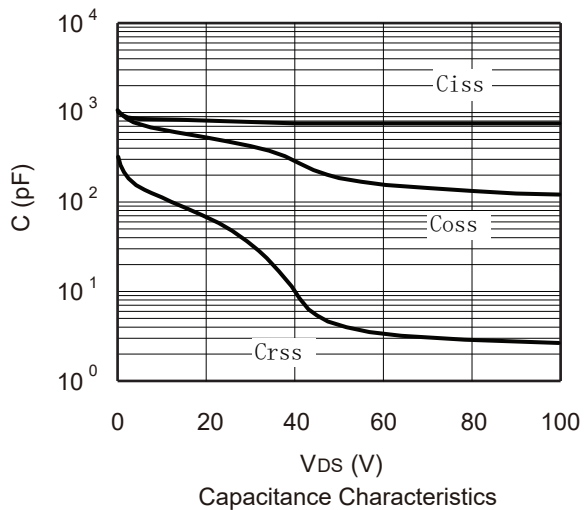
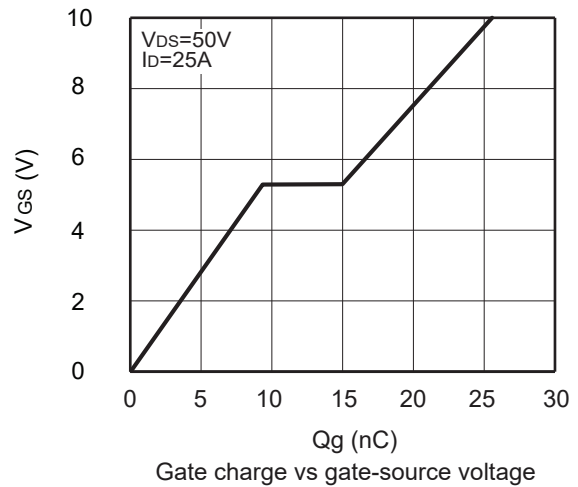
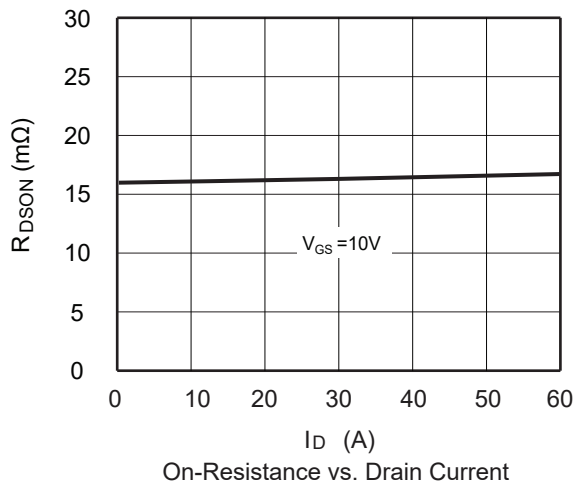
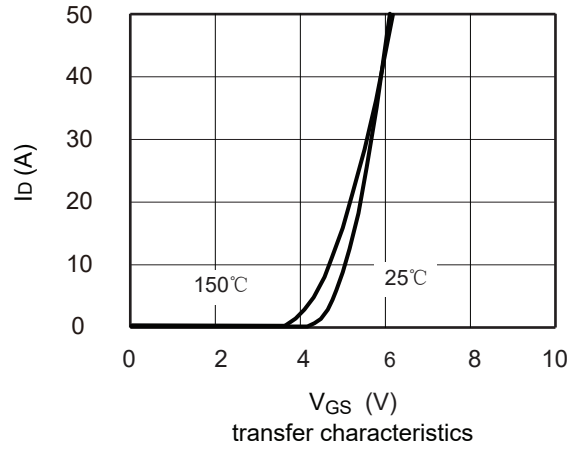
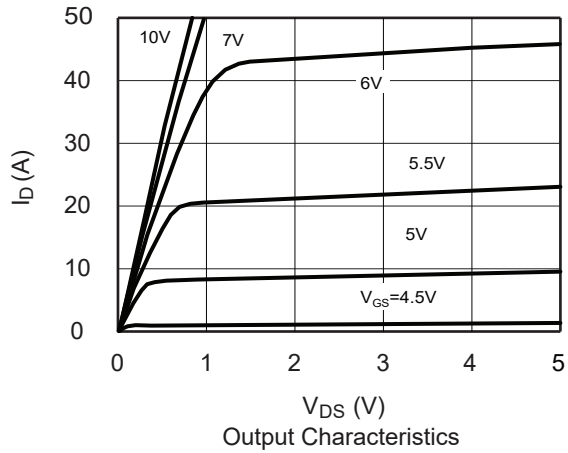
1.The EAS data shows Max. rating . The test condition is V<sub>DD</sub>=50V, V<sub>GS</sub>=10V, L=1mH, I<sub>AS</sub>=14A.

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.

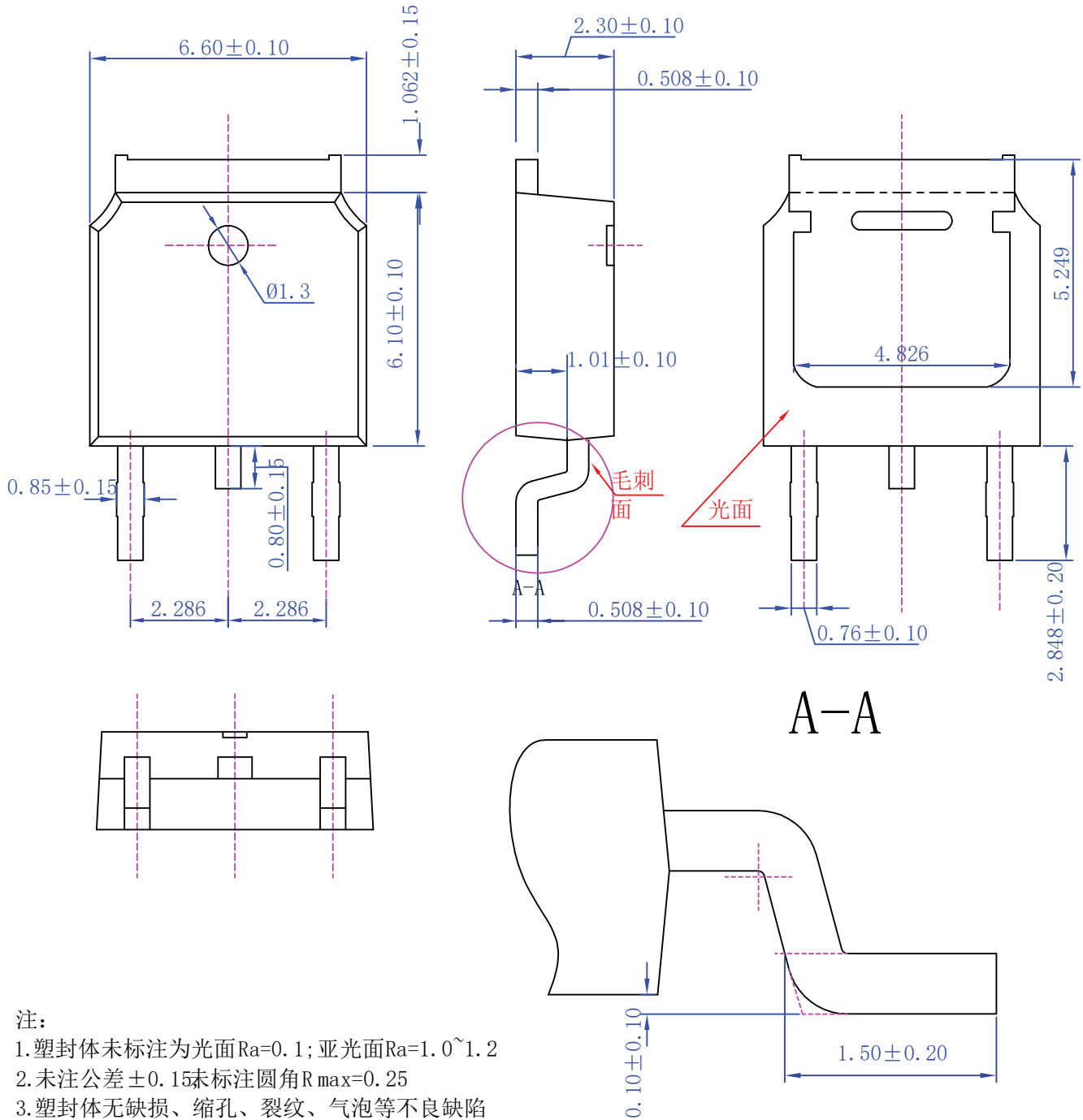
Typical Characteristics



Package Dimension

TO-252

Unit :mm



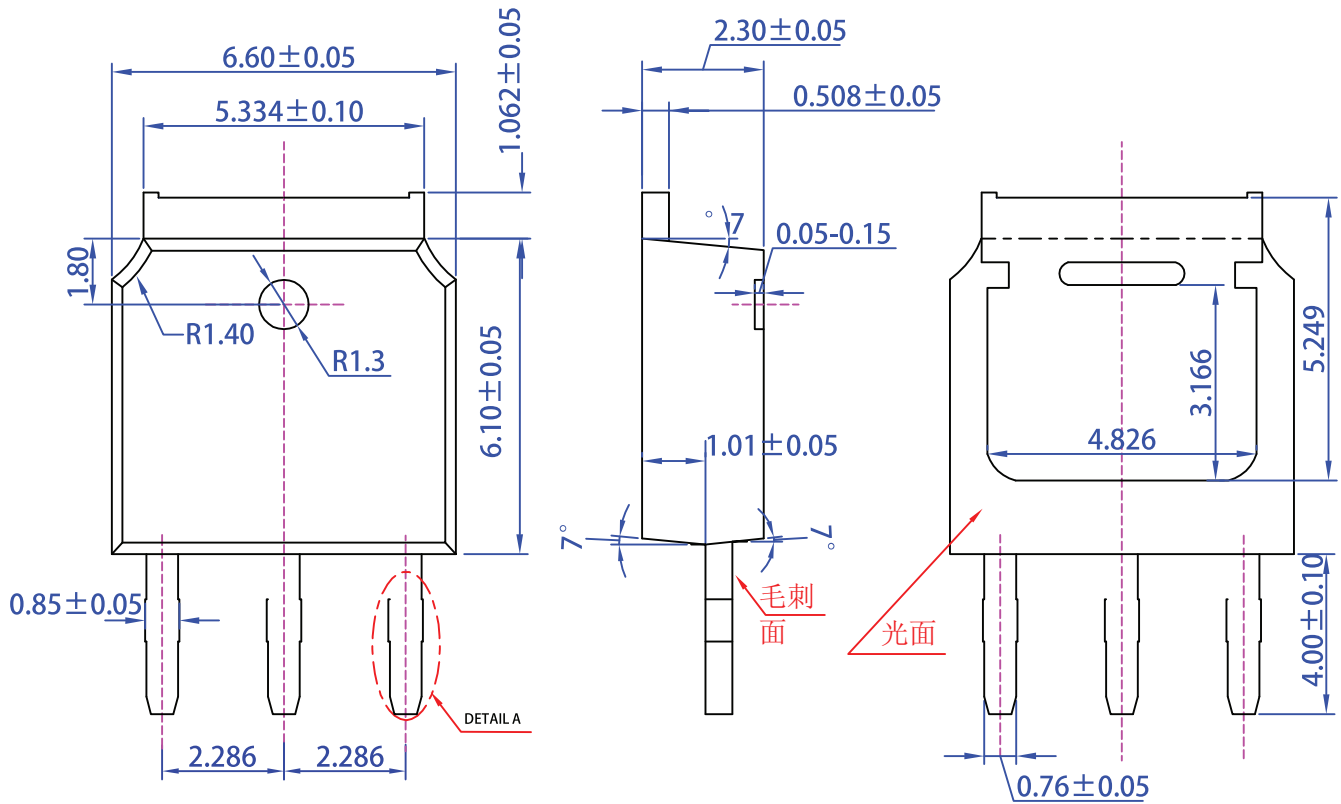
注:

1. 塑封体未标注为光面Ra=0.1; 亚光面Ra=1.0~1.2
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



DETAIL A  
0<A1 or A2<0.05

