

CMD160N10/CMU160N10

100V, 14mΩ typ., 55A N-Channel MOSFET

General Description

The 160N10 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

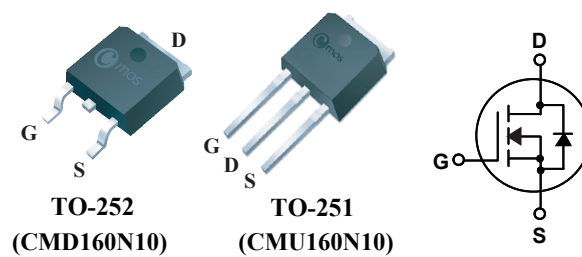
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	16mΩ	55A

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	55	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	35	A
I_{DM}	Pulsed Drain Current	220	A
EAS	Single Pulse Avalanche Energy ¹	30	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)	---	52	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.25	°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	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =20A	---	14	16	mΩ
		V _{GS} =4.5V, I _D =15A	---	18.7	22	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.0	---	3.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V, 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	---	18	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	2.2	---	Ω
Q _g	Total Gate Charge	I _D =25A	---	25.6	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =50V	---	10	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V	---	7.5	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =50V V _{GS} =10V R _{G_ext} =2.7Ω	---	13	---	ns
T _r	Rise Time		---	41	---	
T _{d(off)}	Turn-Off Delay Time		---	22	---	
T _f	Fall Time		---	11	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	860	---	pF
C _{oss}	Output Capacitance		---	410	---	
C _{rss}	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	55	A
I _{SM}	Pulsed Source Current		---	---	220	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =20A, T _J =25°C	---	0.9	1.2	V

Note :

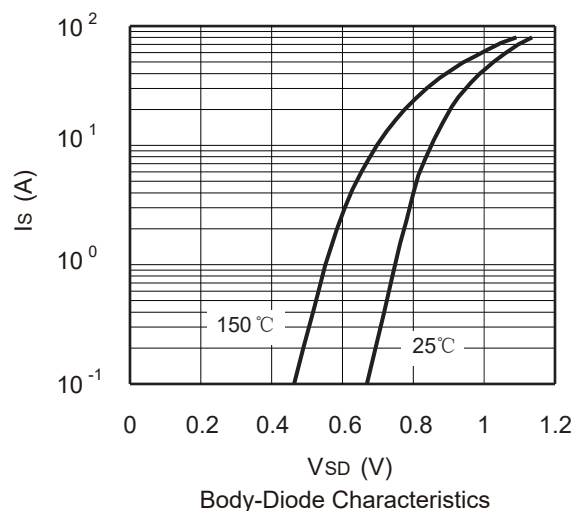
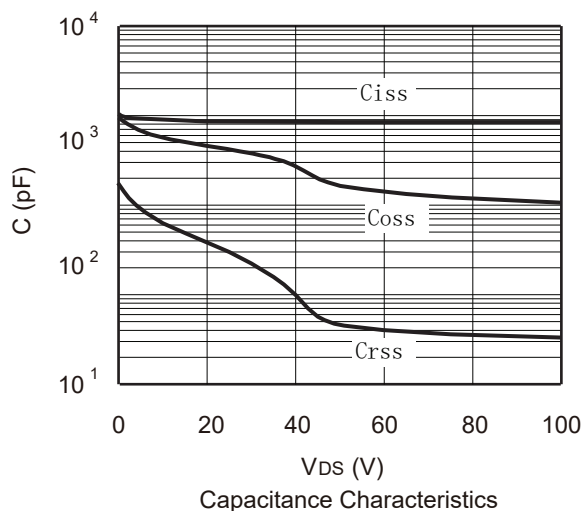
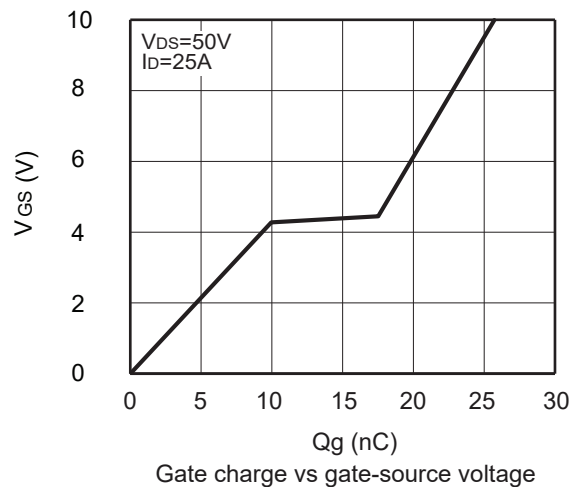
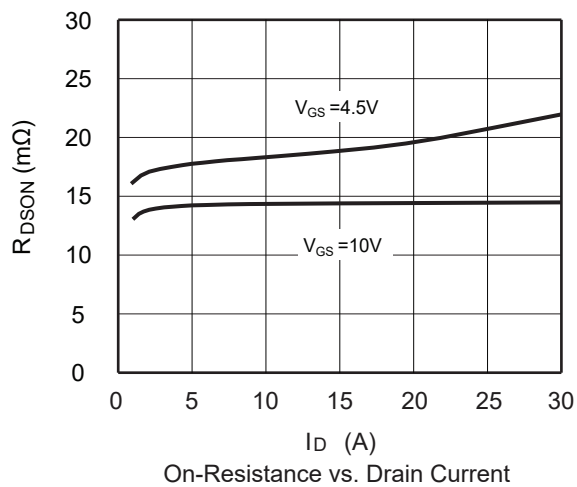
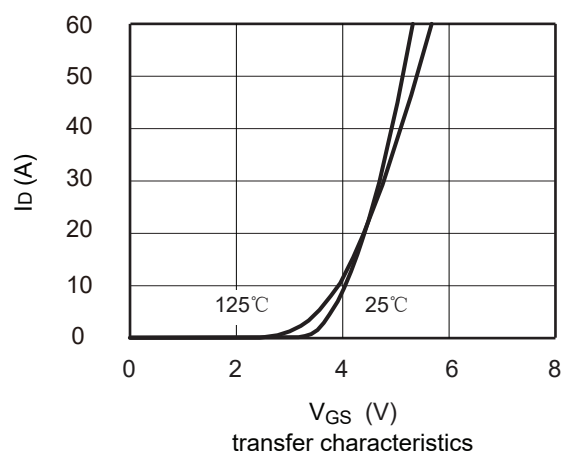
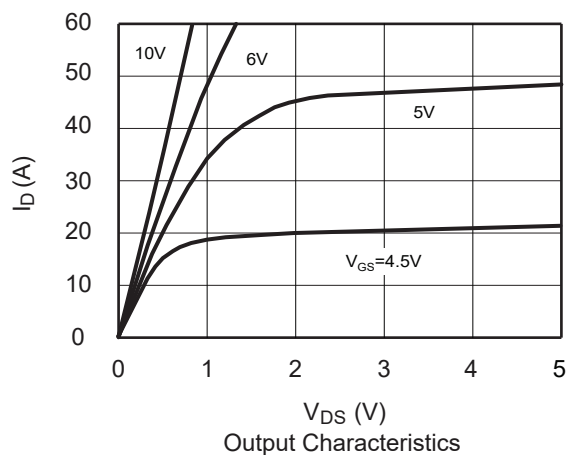
1.The EAS data shows Max. rating . The test condition is V_{DD}=50V, V_{GS}=10V, L=0.5mH, I_{AS}=11A.

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.

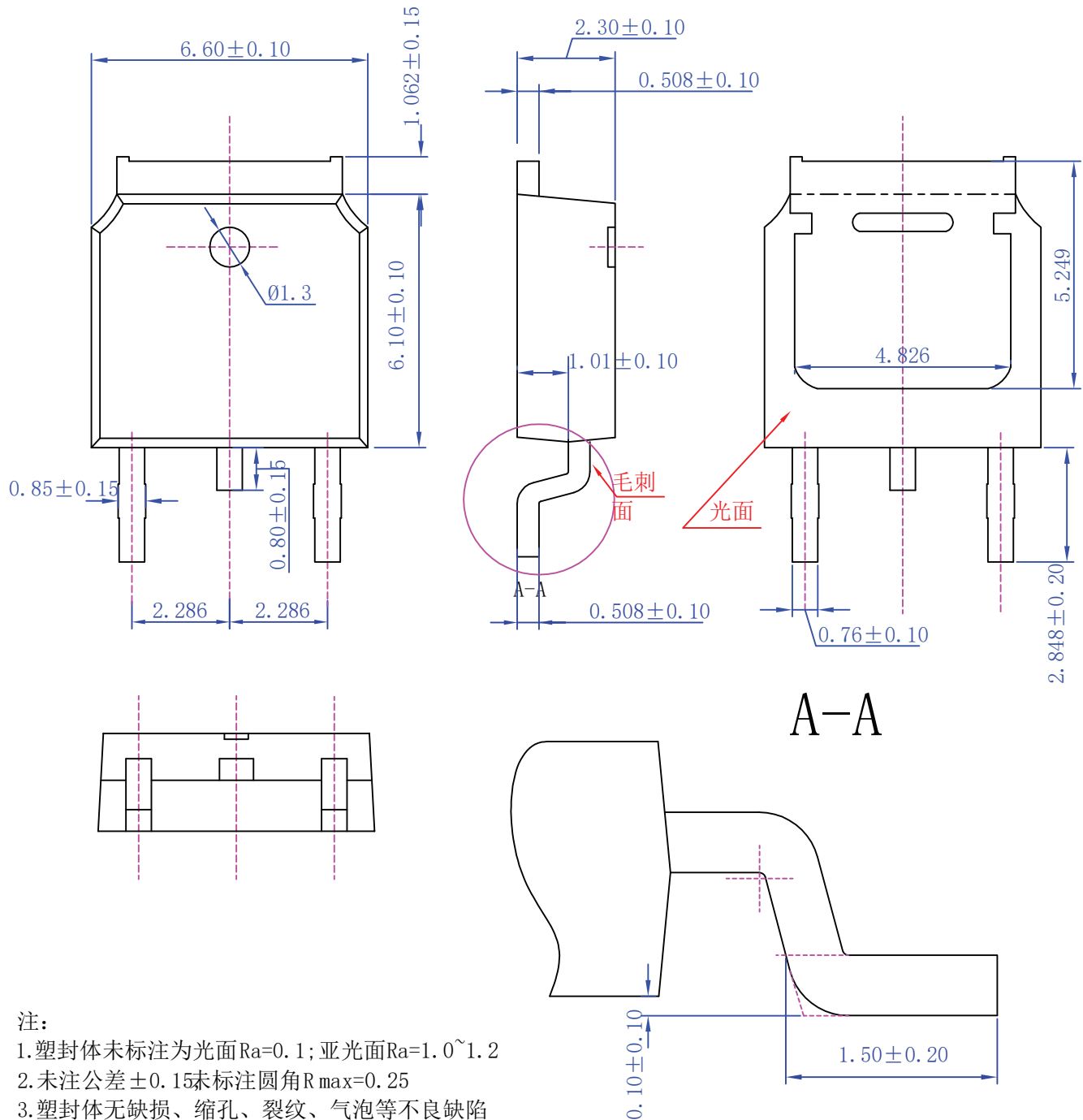
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

