CMD25N20A/CMU25N20A

200V N-Channel MOSFET

General Description

These power MOSFETs are produced using Cmos's proprietary planar stripe DMOS technology. They are therefore suitable as primary switches in advanced high-efficiency isolated DC-DC converters.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
200V	0.17Ω	20A

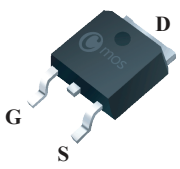
Applications

- Switching applications
- Power Supply

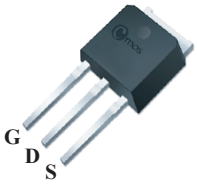
Features

- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

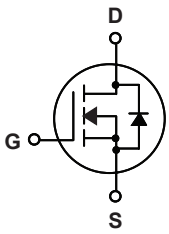
TO-252/251 Pin Configuration



TO-252
(CMD25N20A)



TO-251
(CMU25N20A)



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℃	Continuous Drain Current	20	A
I_D@T_C=100℃	Continuous Drain Current	11.3	A
I_{DM}	Pulsed Drain Current	80	A
EAS	Single Pulse Avalanche Energy[1]	688	mJ
P_D@T_C=25℃	Total Power Dissipation	70	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient[2]	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case[2]	---	1.79	℃/W

Electrical Characteristics (T_J=25℃ , 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[3]	V_{GS}=10V , I_D=9A	---	---	0.17	Ω
$V_{GS(th)}$	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} =±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance[3]	V_{DS}=10V, I_D=10A	---	15	---	S
Q_g	Total Gate Charge	V_{DS}=100V , V_{GS}=10V, I_D=18A	---	22	---	nC
Q_{gs}	Gate-Source Charge[3,4]		---	6.8	---	
Q_{gd}	Gate-Drain Charge[3,4]		---	7	---	
$T_{d(on)}$	Turn-On Delay Time[3,4]	V_{DD}=100V , R_G=25Ω , I_D=18A	---	15	---	ns
T_r	Rise Time[3,4]		---	120	---	
$T_{d(off)}$	Turn-Off Delay Time[3,4]		---	135	---	
T_f	Fall Time[3,4]		---	98	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1000	---	pF
C_{oss}	Output Capacitance		---	230	---	
C_{rss}	Reverse Transfer Capacitance		---	60	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	20	A
I_{SM}	Pulsed Source Current		---	---	80	A
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V , I_S=9A , T_J=25℃	---	---	1.4	V

Note :

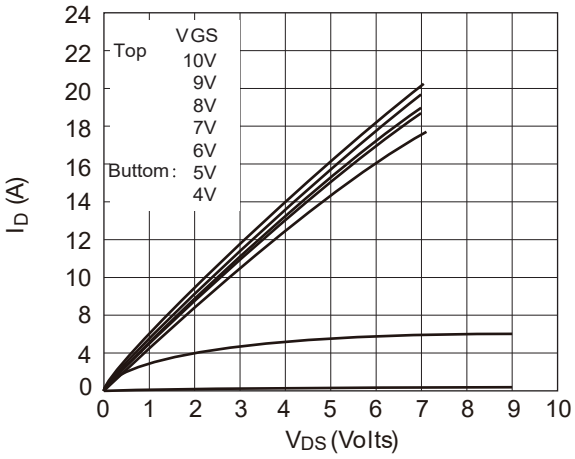
1.1.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=5mH , I_D=16.6A

2.When mounted on the minimum pad size recommended (PCB Mount)

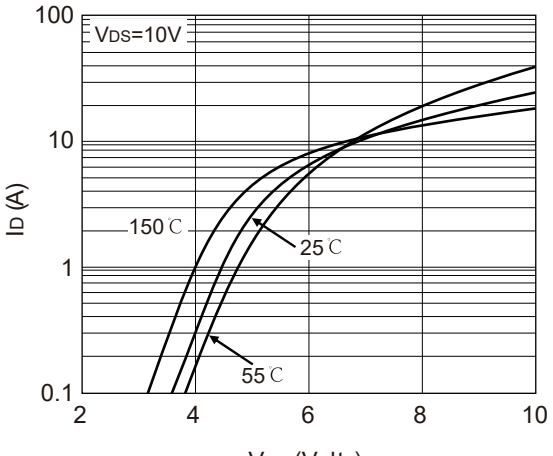
3.Essentially independent of operating temperature

4.Pulse Test : Pulse Width 300us, Duty cycle≤2%

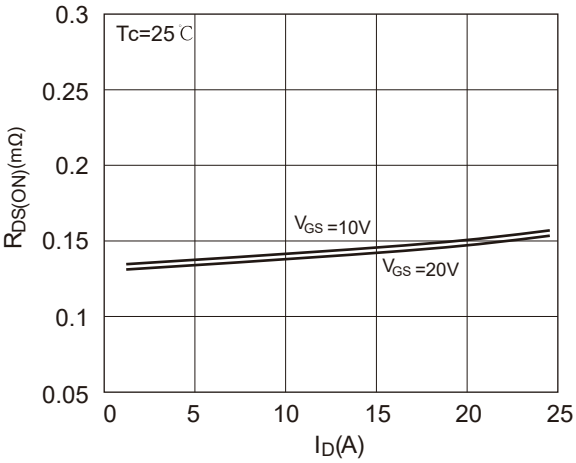
Typical Characteristics



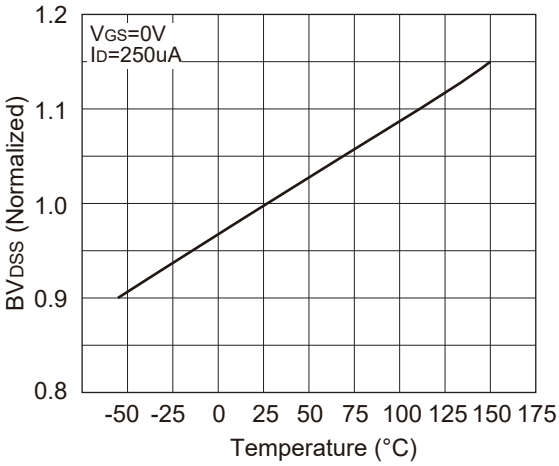
On-Region Characteristics



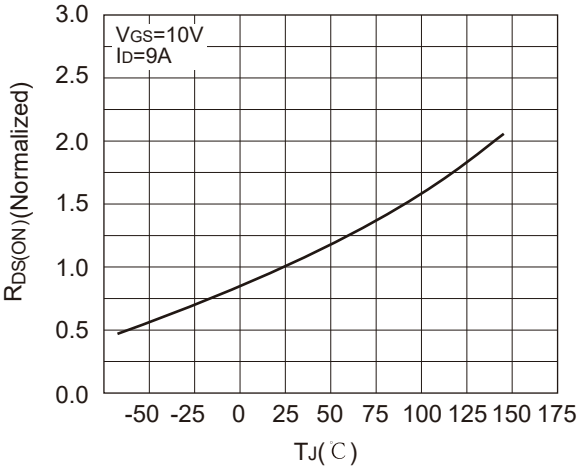
Transfer Characteristics



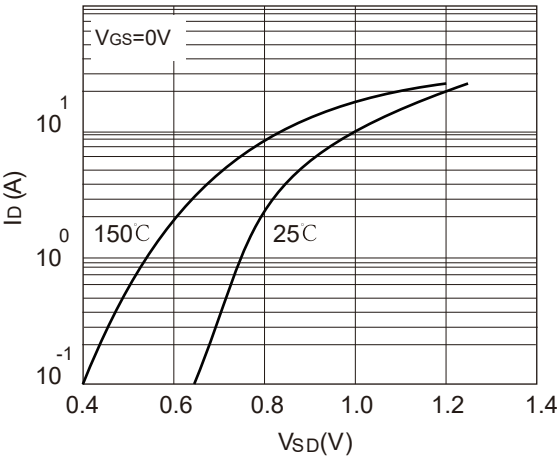
On-Resistance vs. Drain Current and Gate



On-Resistance vs. Junction Temperature

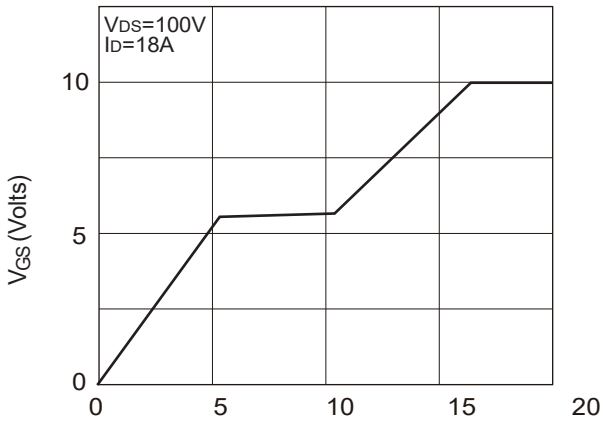


Break Down vs. Junction Temparature

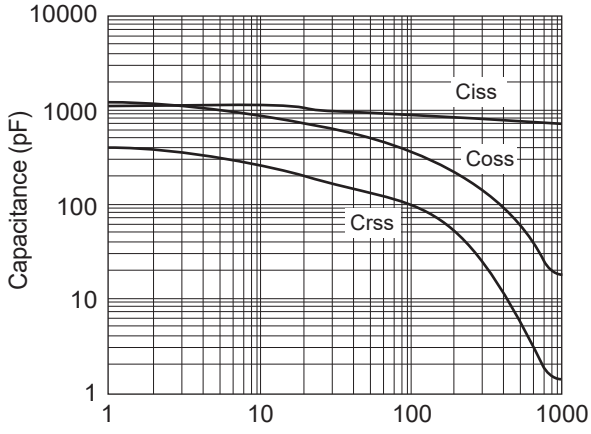


Source-Diode Voltage

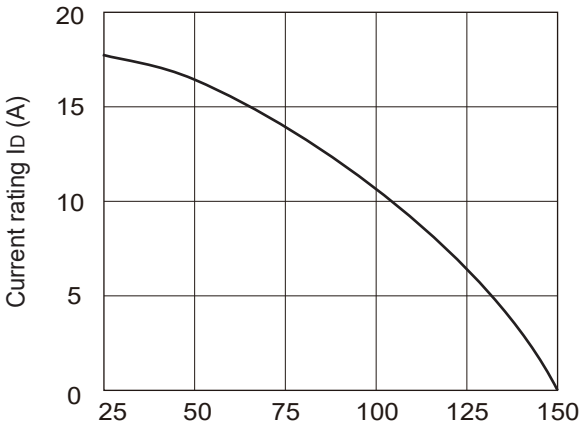
Typical Characteristics



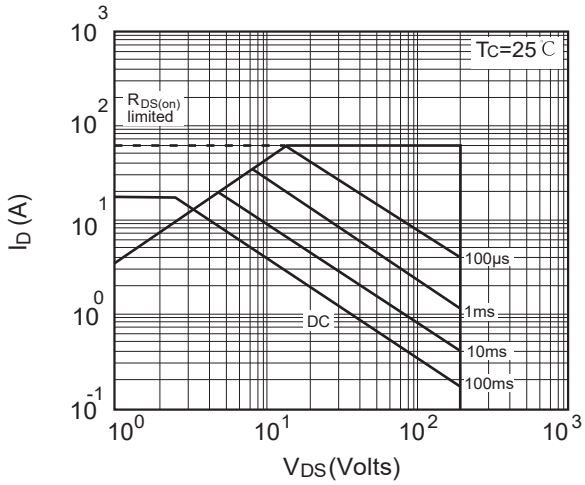
On-Region Characteristics



Capacitance Characteristics



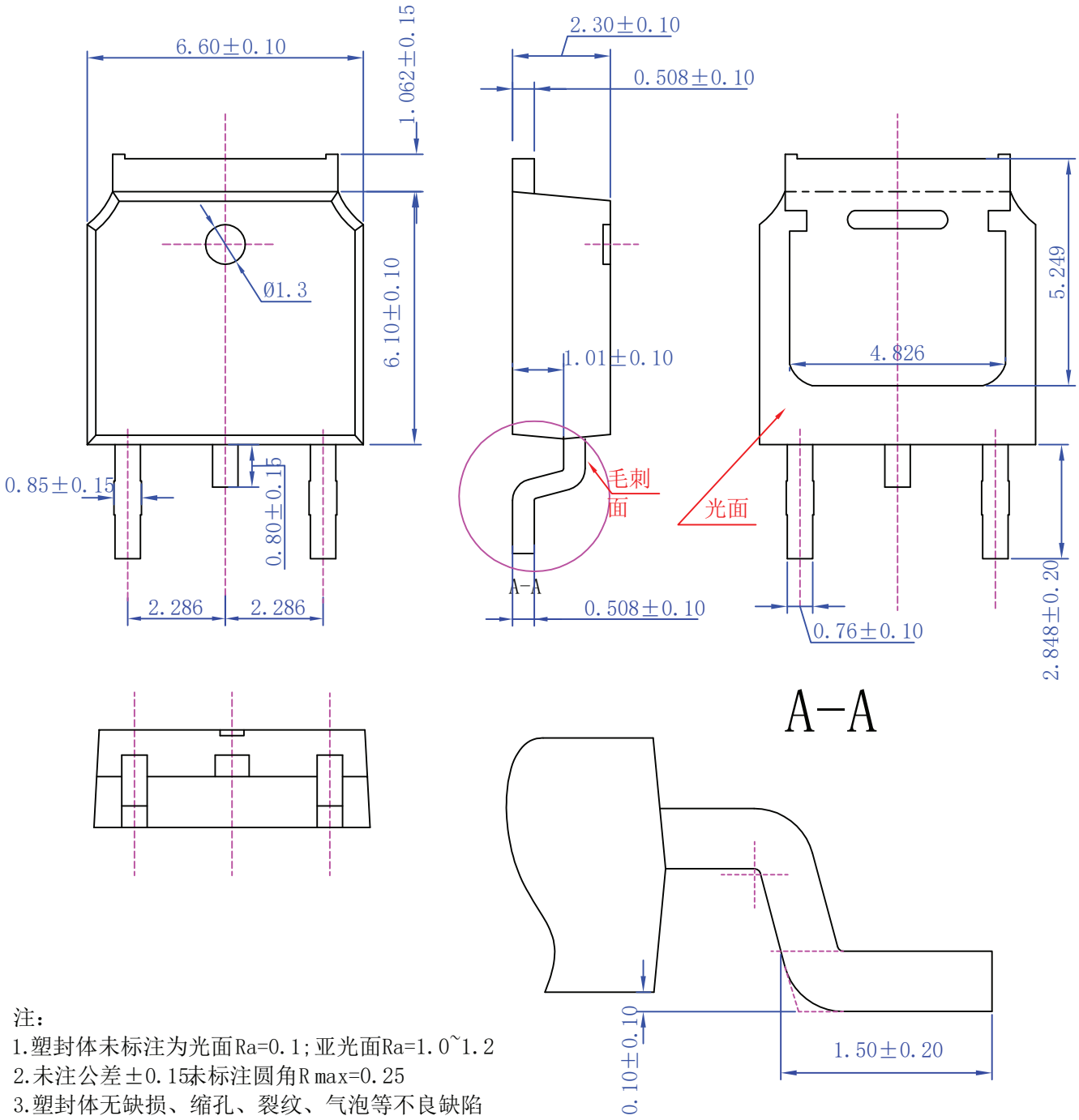
Current De-rating



Maximum Forward Biased Safe Operating Area

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