CMD150N03A/CMU150N03A

30V N-Channel MOSFET

General Description

The 150N03A uses advanced trench technology to provide excellent RDS(ON).This device is ideally suited for high current switching applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	3.0mΩ	150A

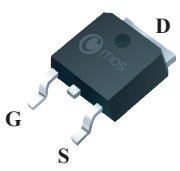
Applications

- Uninterruptible Power Supply
- DC Motor Control
- Load Switch

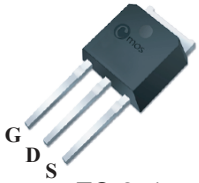
Features

- Low On-Resistance
- 100% avalanche tested
- Simple Drive Requirements
- RoHS Compliant

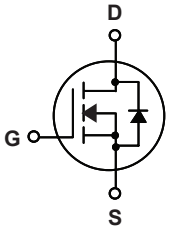
TO-252/251 Pin Configuration



TO-252



TO-251



Type	Package	Marking
CMD150N03A	TO-252	CMD150N03A
CMU150N03A	TO-251	CMU150N03A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	150	A
I_D@T_C=100℃	Continuous Drain Current	120	A
I_{DM}	Pulsed Drain Current [1]	600	A
EAS	Single Pulse Avalanche Energy [2]	405	mJ
P_D	Total Power Dissipation	130	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(PCB mount)	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.96	℃/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=250μA	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=28A	---	---	3.0	mΩ
		V_{GS}=4.5V , I_D=20A	---	---	6.7	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	---	3.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=24V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}= 10V , I_D=20A	---	28	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.5	---	Ω
Q_g	Total Gate Charge	I_D=30A	---	140	---	nC
Q_{gs}	Gate-Source Charge	V_{DS}=24 V	---	20	---	
Q_{gd}	Gate-Drain Charge	V_{GS}=10V (note 3,4)	---	42	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=15V, I_D=30A	---	16	---	ns
T_r	Rise Time	R_G=4.7Ω	---	64	---	
$T_{d(off)}$	Turn-Off Delay Time	V_{GS}=10V	---	160	---	
T_f	Fall Time	(note 3,4)	---	80	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	6000	---	pF
C_{oss}	Output Capacitance		---	600	---	
C_{rss}	Reverse Transfer Capacitance		---	570	---	

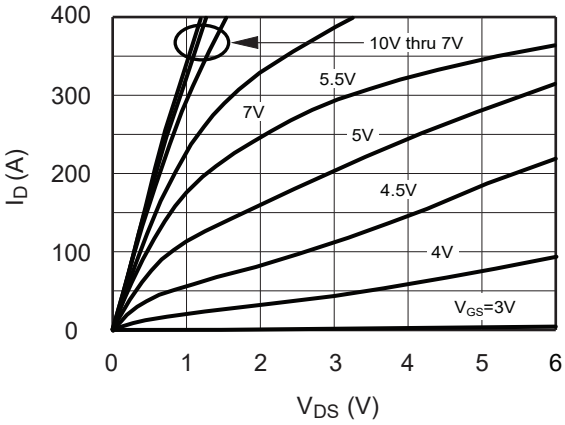
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	150	A
I_{SM}	Pulsed Source Current		---	---	600	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=15A ,T_J=25℃	---	0.81	1.2	V
t_{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	28	---	ns
Q_{rr}	Reverse Recovery Charge	T_J =25℃ , I_{DS}=30A	---	12	---	nC

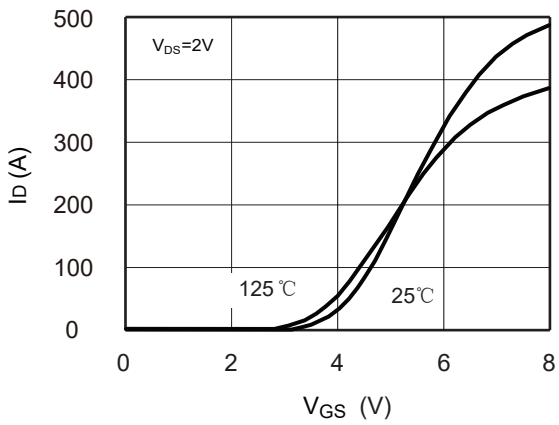
Note :

1. Repeatitive rating : pulse width limited by junction temperature.
2. The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.5mH,I_{AS}=40.2A
3. Pulse Test : Pulse Width ≤ 300us, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

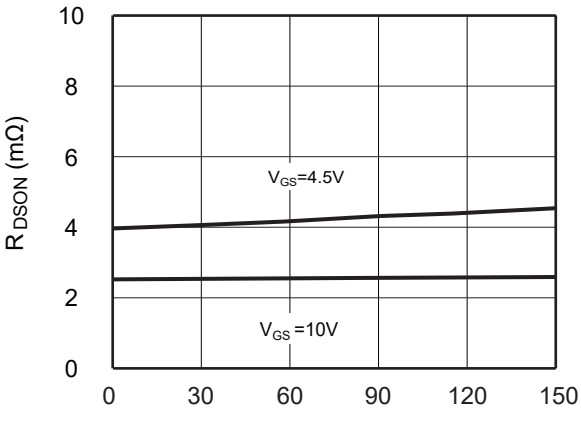
Typical Characteristics



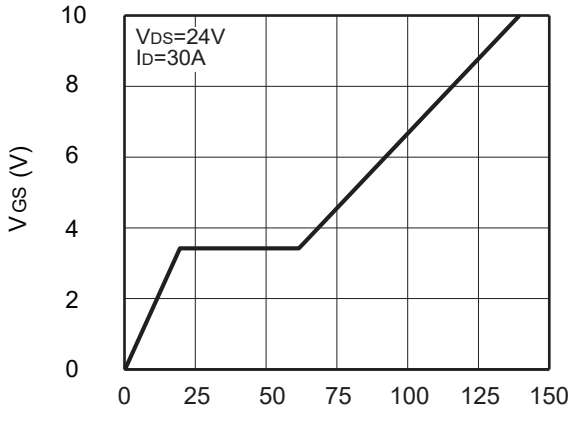
Output Characteristics



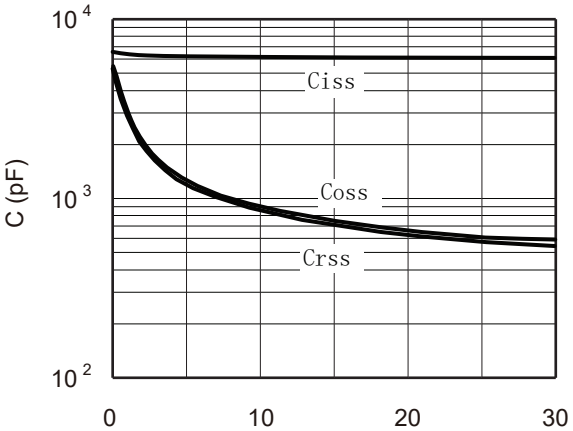
transfer characteristics



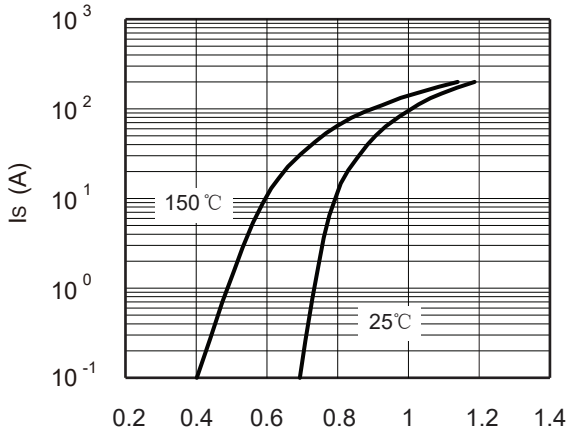
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



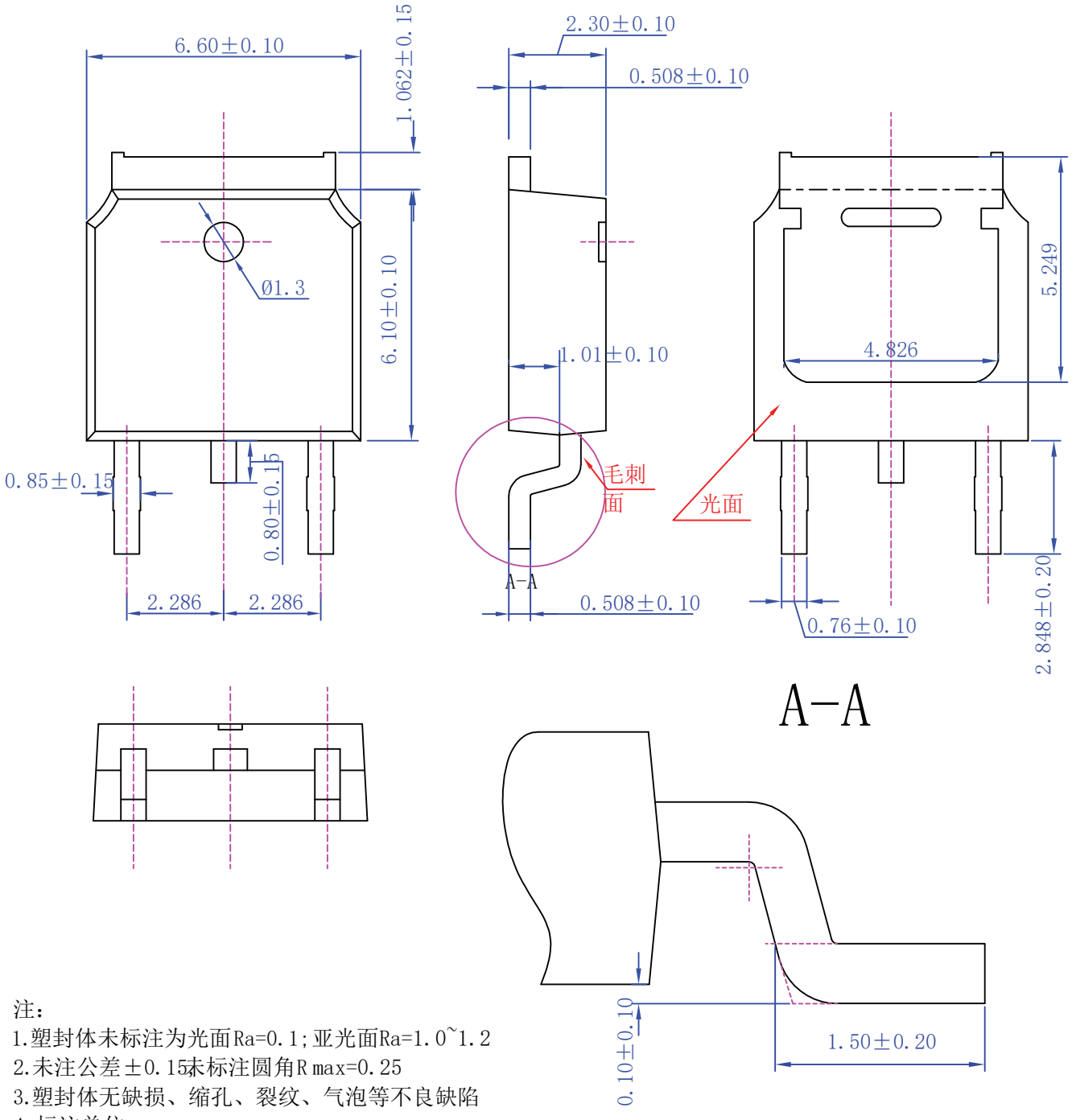
Capacitance Characteristics



Body-Diode 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