

General Description

The 120N15 uses advanced trench technology and design to provide excellent RDS(ON). This device is ideal for PWM, load switching and general purpose applications.

Features

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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	70	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	49	A
I_{DM}	Pulsed Drain Current	280	A
EAS	Single Pulse Avalanche Energy ¹	540	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	140	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	---	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	0.89	°C/W

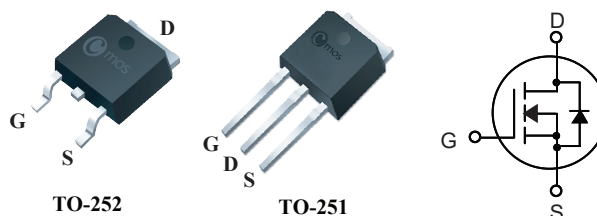
Product Summary

BVDSS	R _{DS(on)} max.	ID
150V	12mΩ	70A

Applications

- DC-DC Converters
- Power switching application

TO-252/251 Pin Configuration



Type	Package	Marking
CMD120N15	TO-252	CMD120N15
CMU120N15	TO-251	CMU120N15

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	10	12	mΩ
		$V_{GS}=4.5V$, $I_D=20A$	---	11.4	14	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=150V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	54	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	44	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=75V$	---	10	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	7	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=75V$	---	13	---	ns
T_r	Rise Time	$R_{GEN}=3\Omega$	---	4.5	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_L=3.75\Omega$	---	40	---	
T_f	Fall Time	$V_{GS}=10V$	---	13	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3300	---	pF
C_{oss}	Output Capacitance		---	2500	---	
C_{rss}	Reverse Transfer Capacitance		---	70	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	70	A
I_{SM}	Pulsed Source Current		---	---	280	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=15A$, $T_J=25^{\circ}\text{C}$	---	0.81	1.2	V
t_{rr}	Reverse Recovery Time	$di/dt = 500A/\mu s$	---	66	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{GS}=0V$, $I_S=20A$	---	570	---	nC

Note :

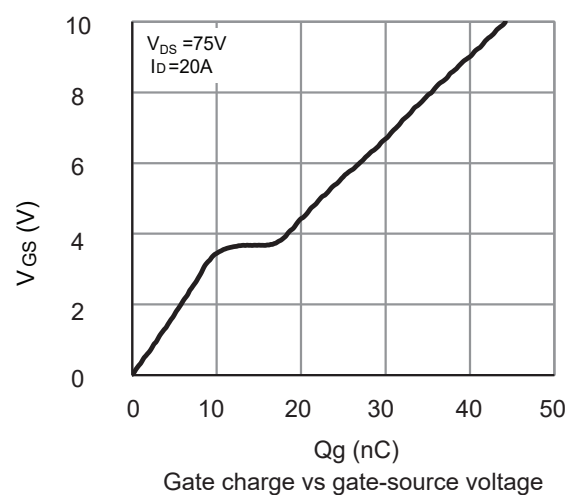
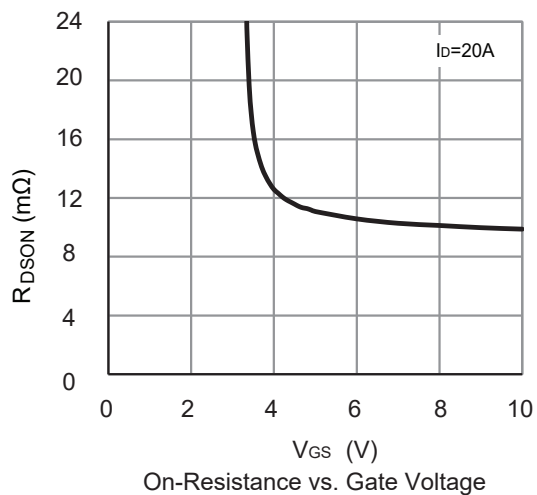
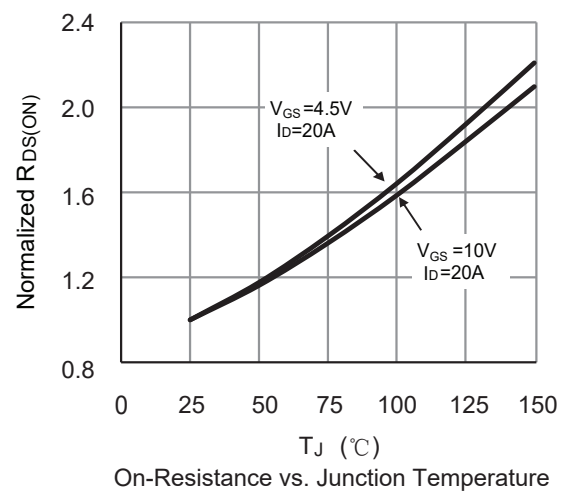
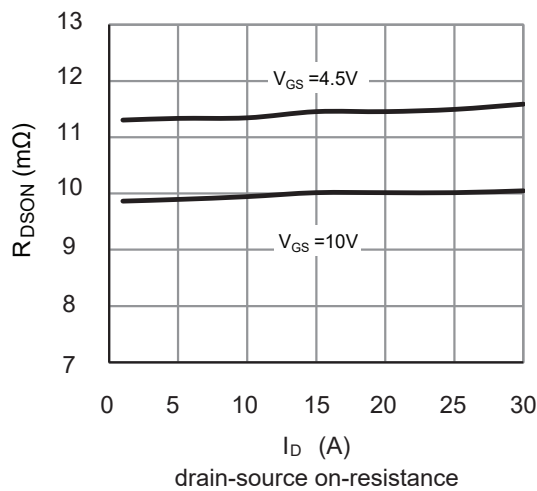
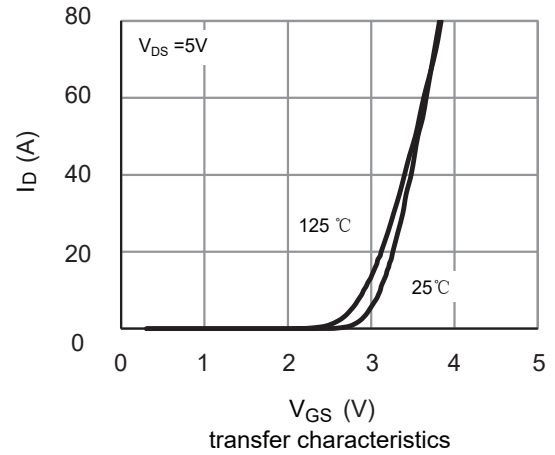
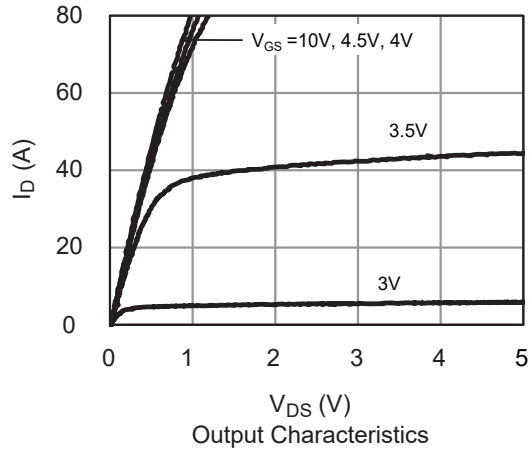
1. The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=0.3\text{mH}$, $I_{AS}=60A$.

This product has been designed and qualified for the consumer market.

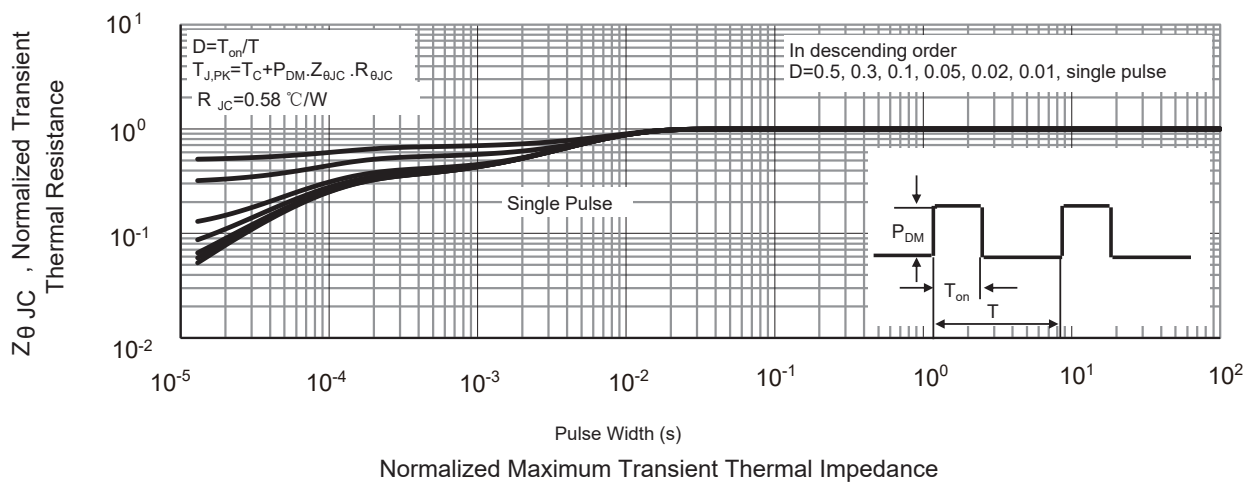
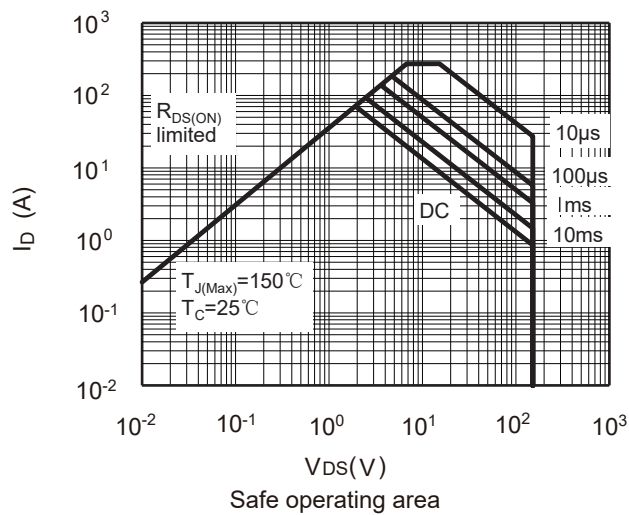
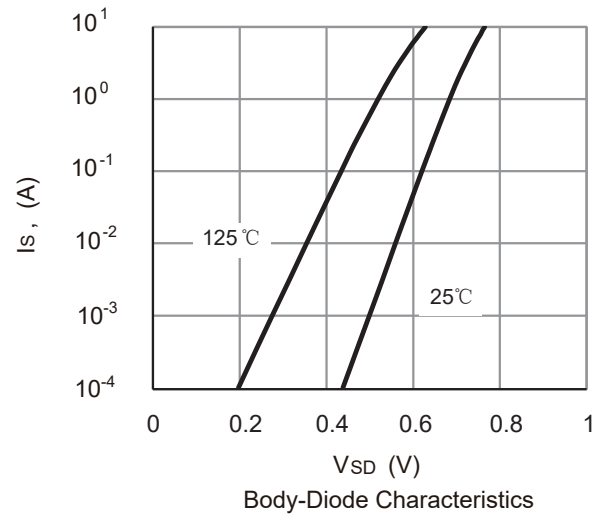
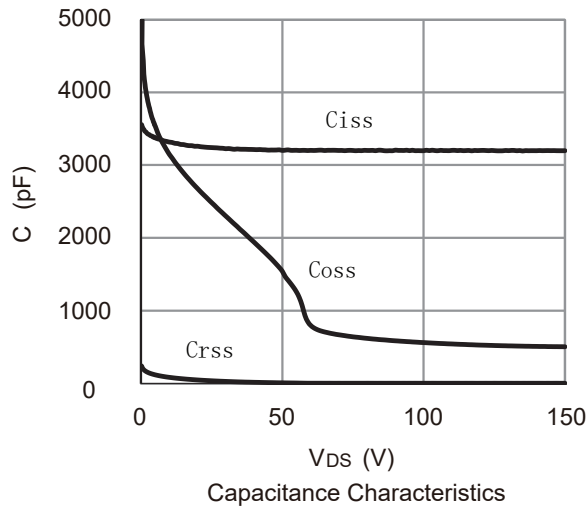
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Cmos reserves the right to improve product design ,functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics



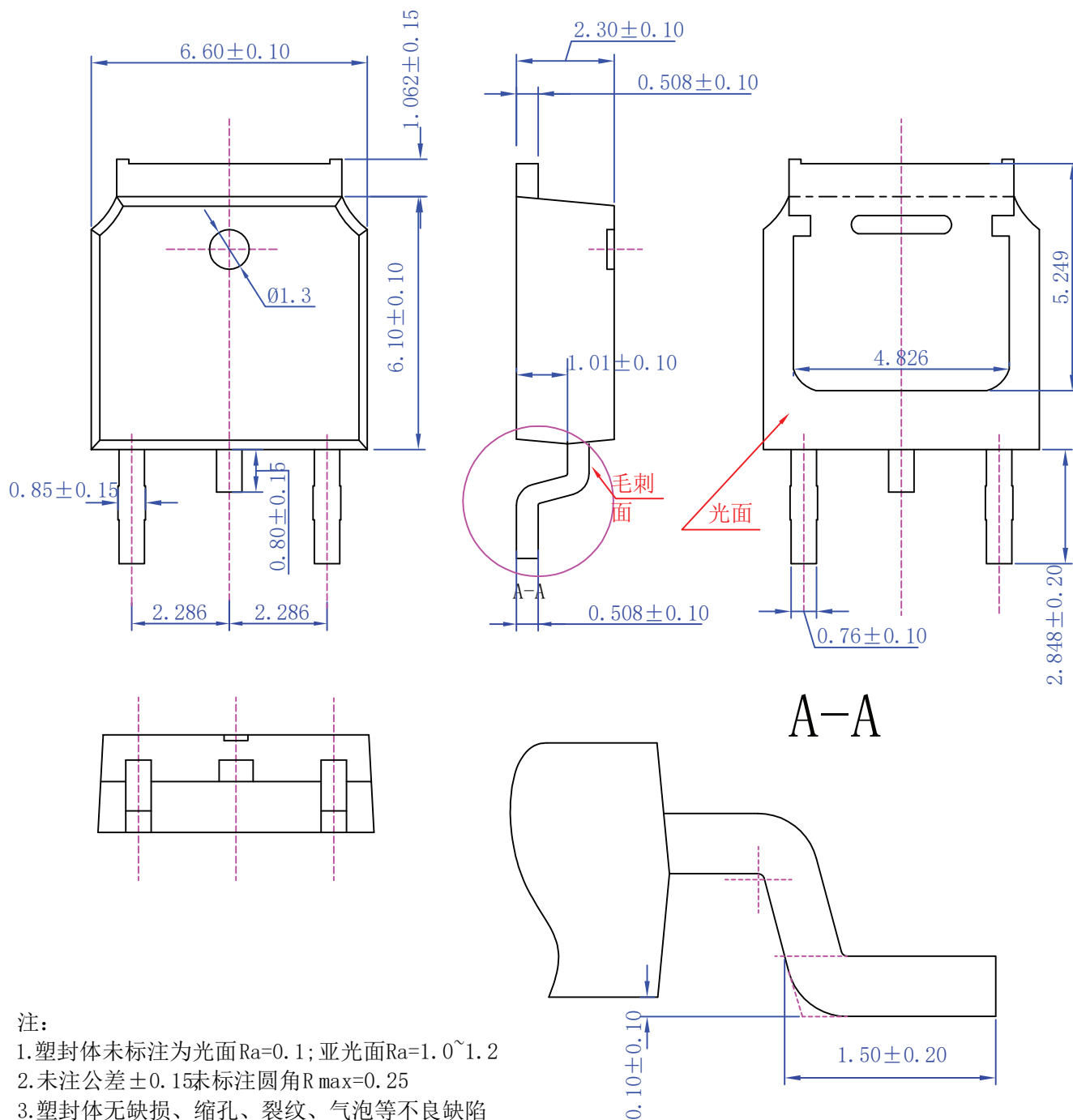
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

