

General Description

The 05N03A 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
- High Reliability Capability with Passivation
- 100% avalanche tested
- RoHS Compliant

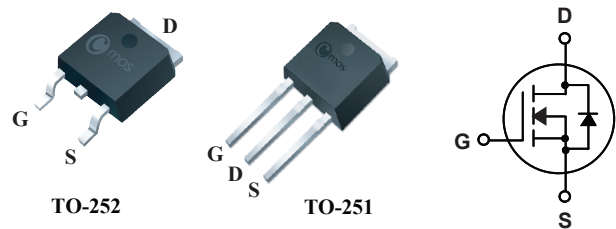
Product Summary

BVDSS	R _{DS(on)} max.	ID
30V	4.5mΩ	80A

Applications

- DC-DC Converters
- Power switching application

TO-252/251 Pin Configuration



Type	Package	Marking
CMD05N03A	TO-252	CMD05N03A
CMU05N03A	TO-251	CMU05N03A

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°C	Continuous Drain Current	80	A
I _D @T _C =100°C	Continuous Drain Current	64	A
I _{DM}	Pulsed Drain Current	240	A
EAS	Single Pulse Avalanche Energy ¹	220	mJ
P _D @T _C =25°C	Total Power Dissipation	75	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 _{θJA}	Thermal Resistance Junction-ambien	---	50	°C/W
R _{θJC}	Thermal Resistance Junction -Case	---	1.67	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	---	4.5	$m\Omega$
		$V_{GS}=4.5V$, $I_D=20A$	---	---	6.8	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=24V$, $V_{GS}=0V$, $T_J=125^{\circ}\text{C}$	---	---	10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=15A$	---	33	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.1	---	Ω
Q_g	Total Gate Charge	$V_{DS}=15V$, $V_{GS}=4.5V$, $I_D=25A$	---	23	---	nC
Q_{gs}	Gate-Source Charge		---	8	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V$, $V_{GS}=10V$ $R_G=2.7\Omega$, $I_{DS}=25A$	---	15	---	ns
T_r	Rise Time		---	100	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	110	---	
C_{iss}	Input Capacitance	$V_{DS}=15V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2400	---	pF
C_{oss}	Output Capacitance		---	240	---	
C_{rss}	Reverse Transfer Capacitance		---	190	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	80	A
I_{SM}	Pulsed Source Current		---	---	320	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.84	1.3	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	21	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{GS}=0V$, $I_{SD}=25A$	---	14	---	μC

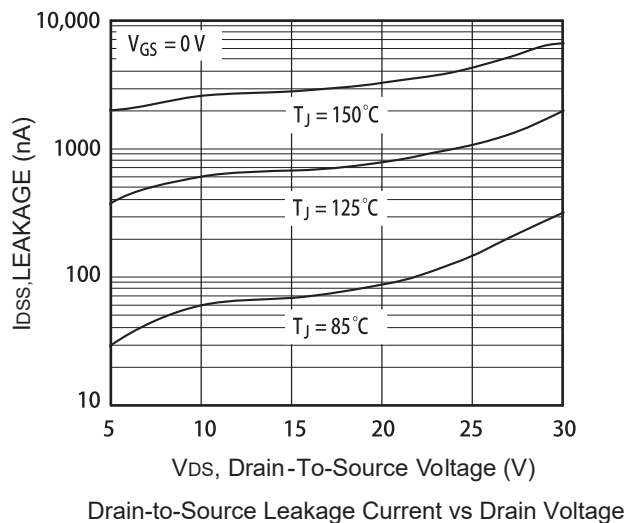
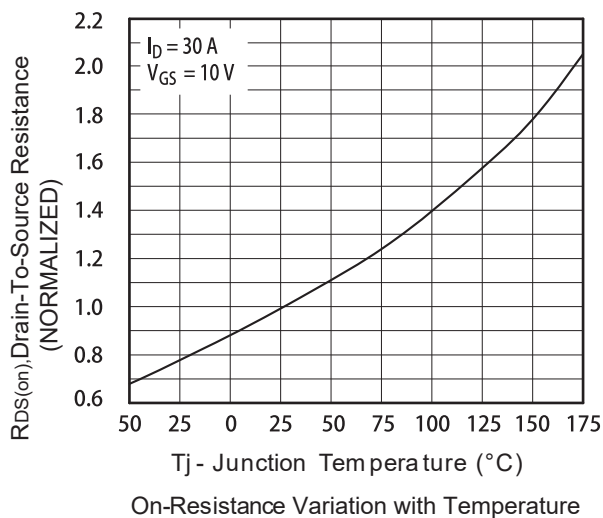
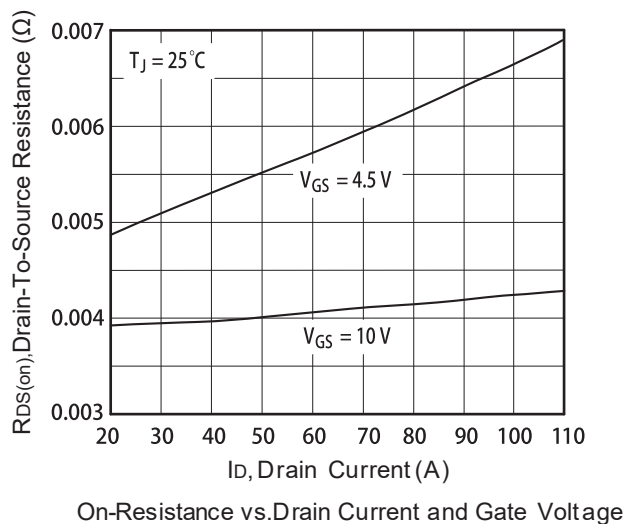
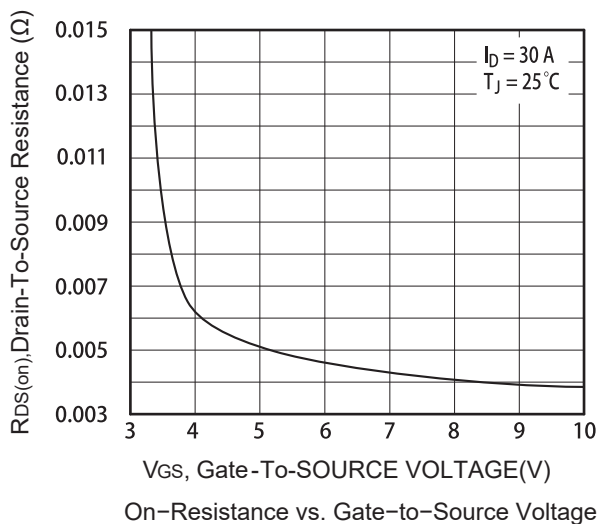
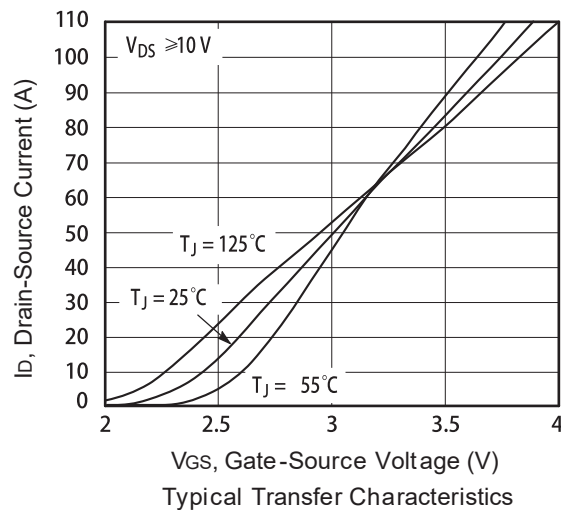
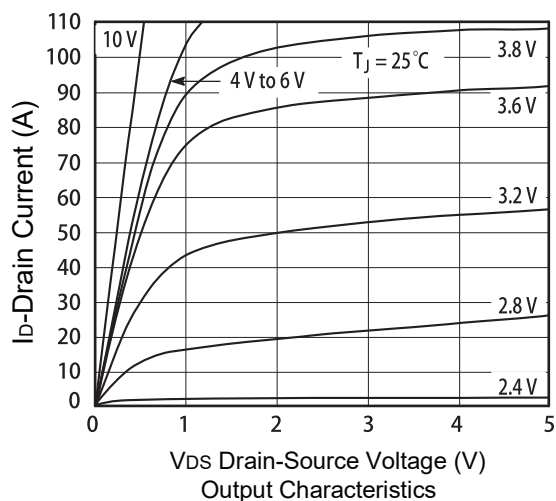
Note :

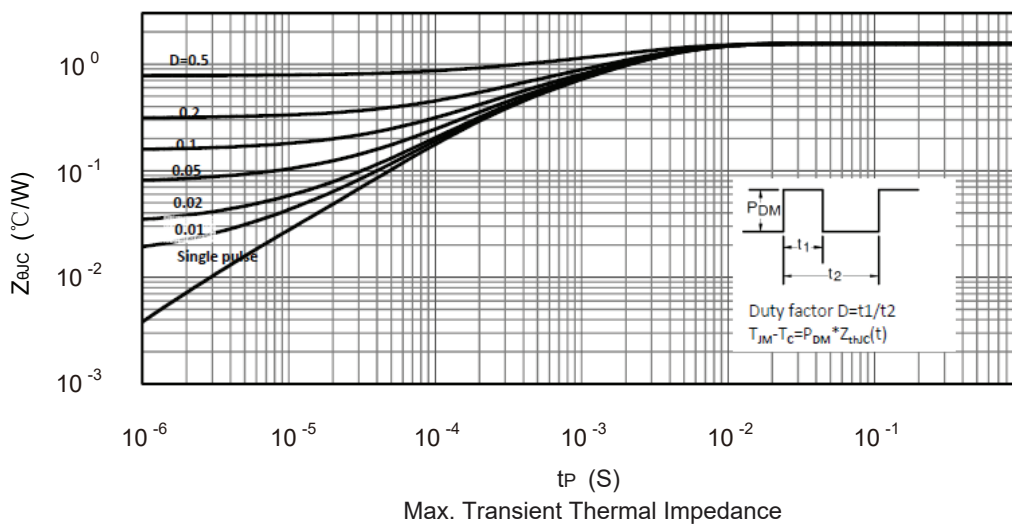
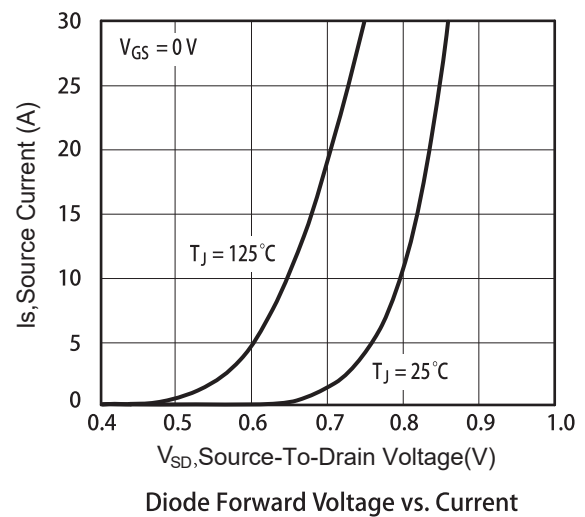
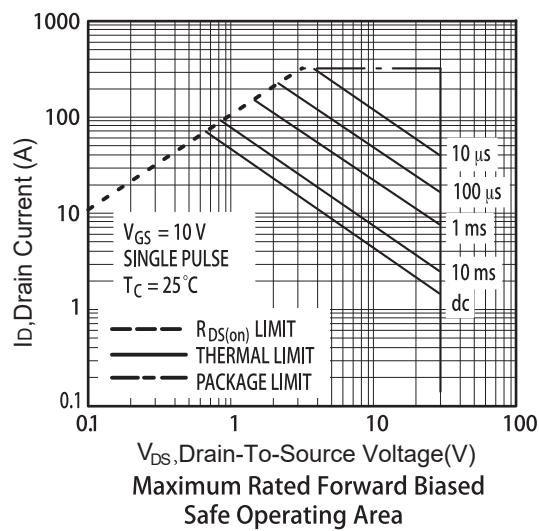
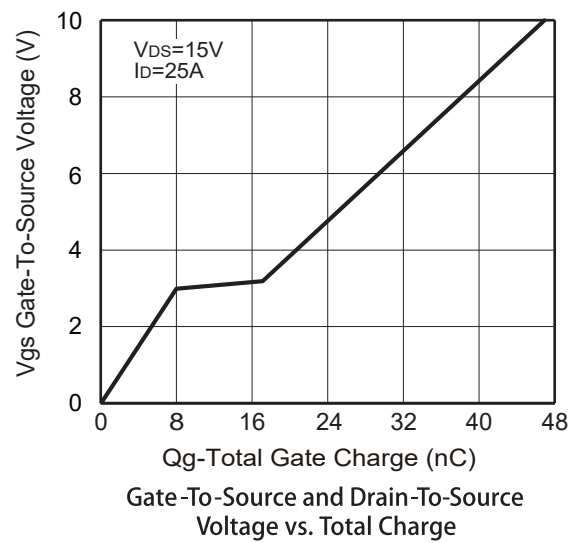
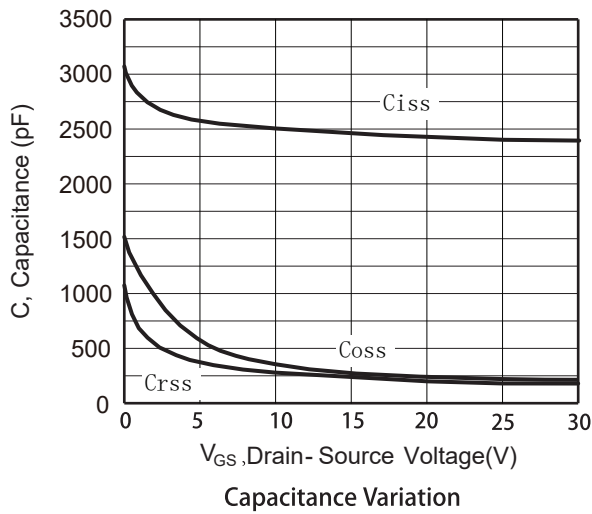
1.The EAS data shows Max. rating . The test condition is $V_{DD}=30V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=30A$.

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.

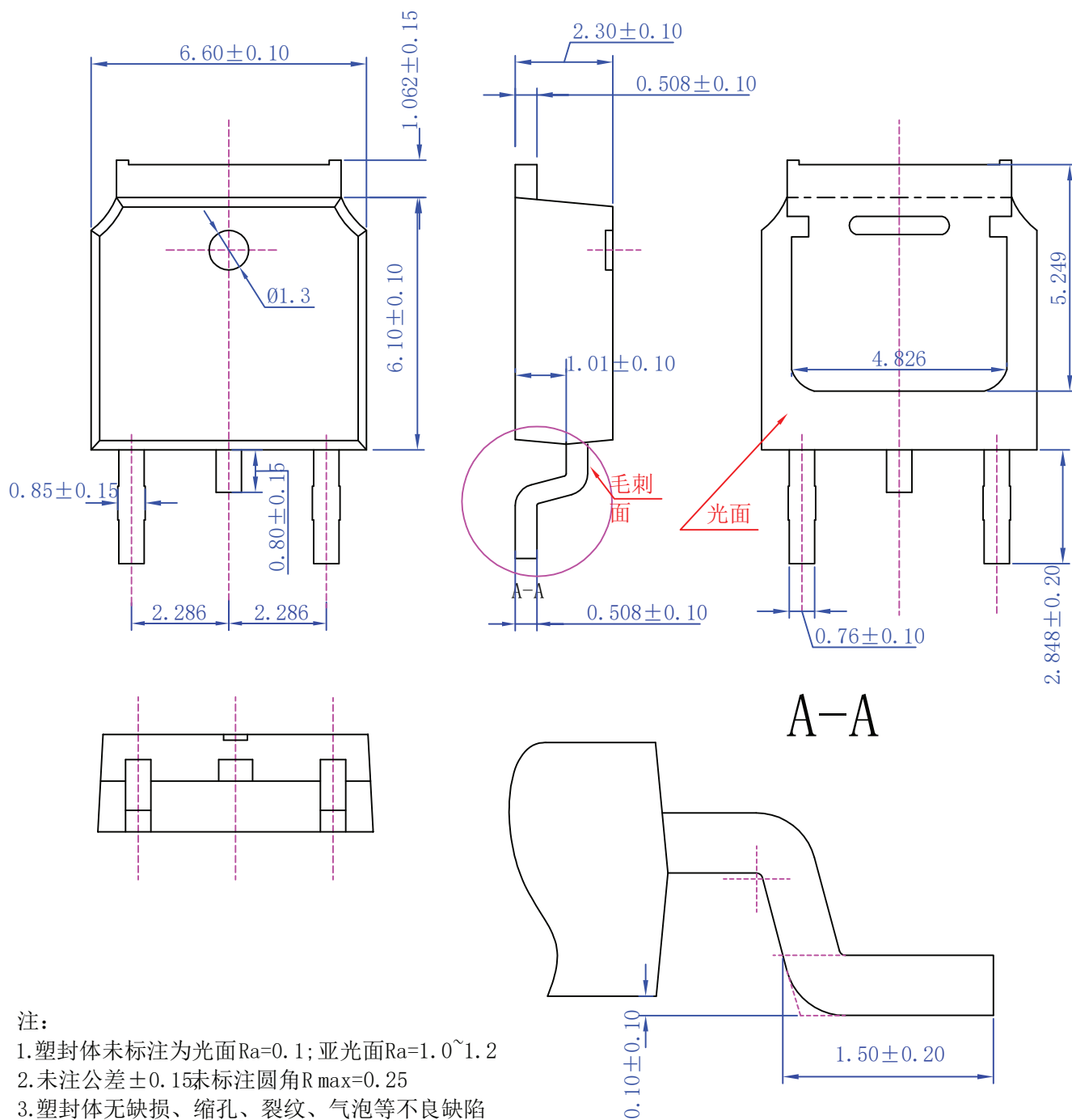




Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

