

General Description

The 50N03 uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for PWM, Load Switching and general purpose applications.

Features

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

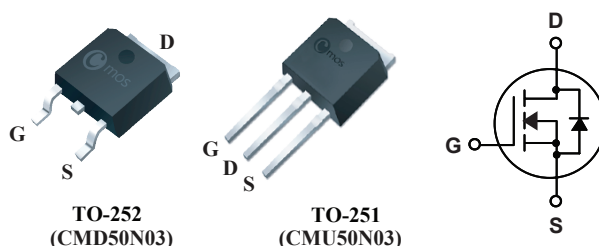
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	8mΩ	50A

Applications

- DC/DC converters
- Power management

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	50	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	32	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy ¹	55	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	50	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	---	45	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.50	°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	30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =30A	---	6	8	mΩ
		V _{GS} =4.5V, I _D =20A	---	11	14	
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
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =20A	---	22	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	2.4	---	Ω
Q _g	Total Gate Charge	I _D =16A	---	15	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =15V	---	6.5	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =4.5V	---	3.5	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =15V	---	10	---	ns
T _r	Rise Time	V _{GS} =10V	---	25	---	
T _{d(off)}	Turn-Off Delay Time	R _G =3.3Ω	---	20	---	
T _f	Fall Time	I _D =20A	---	14	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	1400	---	pF
C _{oss}	Output Capacitance		---	150	---	
C _{rss}	Reverse Transfer Capacitance		---	130	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	50	A
I _{SM}	Pulsed Source Current		---	---	200	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =20A, T _J =25°C	---	0.88	1.2	V

Note :

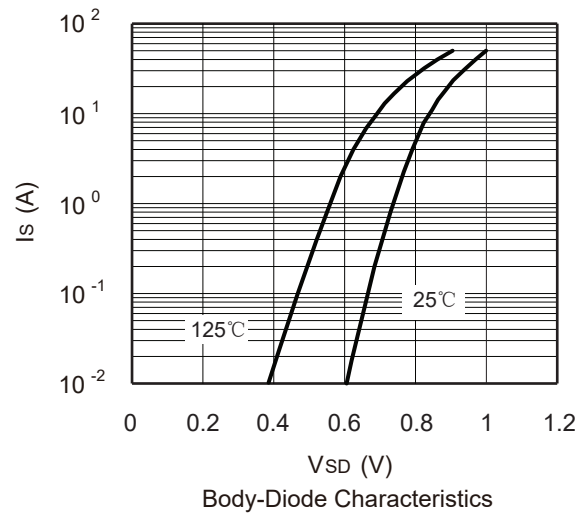
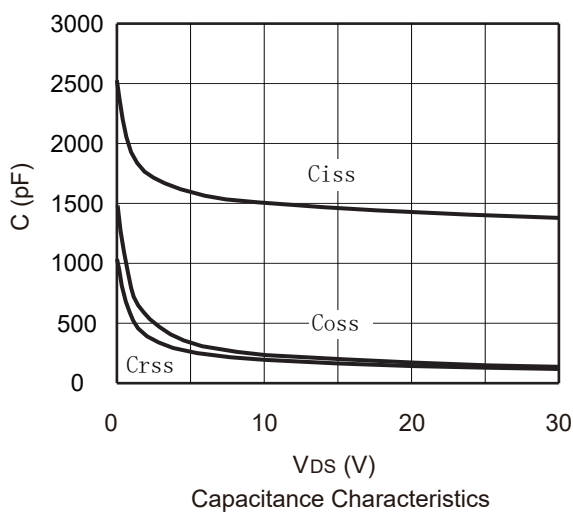
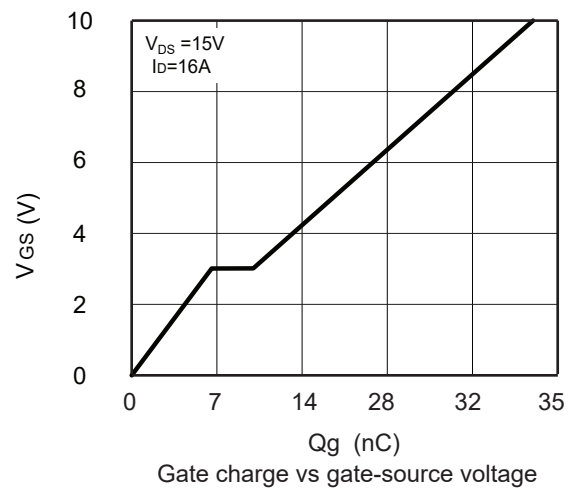
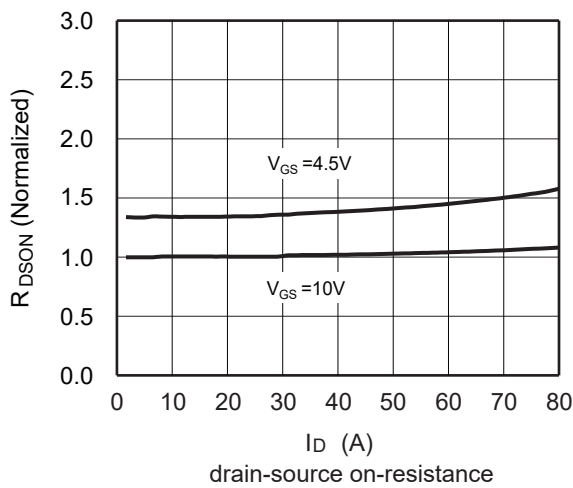
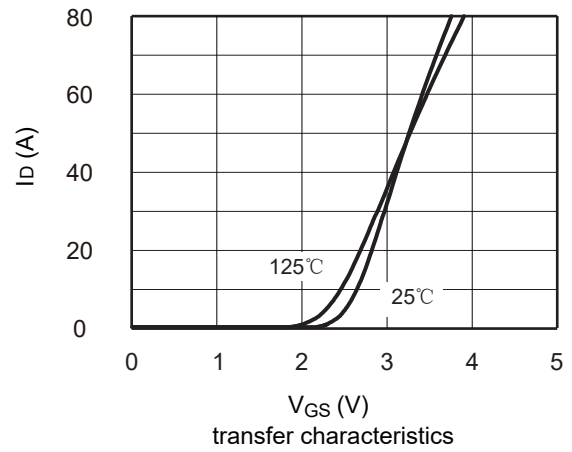
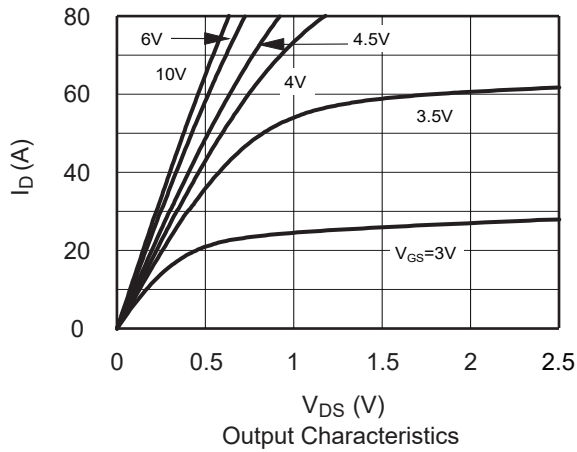
1.The EAS data shows Max. rating . The test condition is V_{DD}=15V, V_{GS}=10V, L=1mH, I_{AS}=10A.

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

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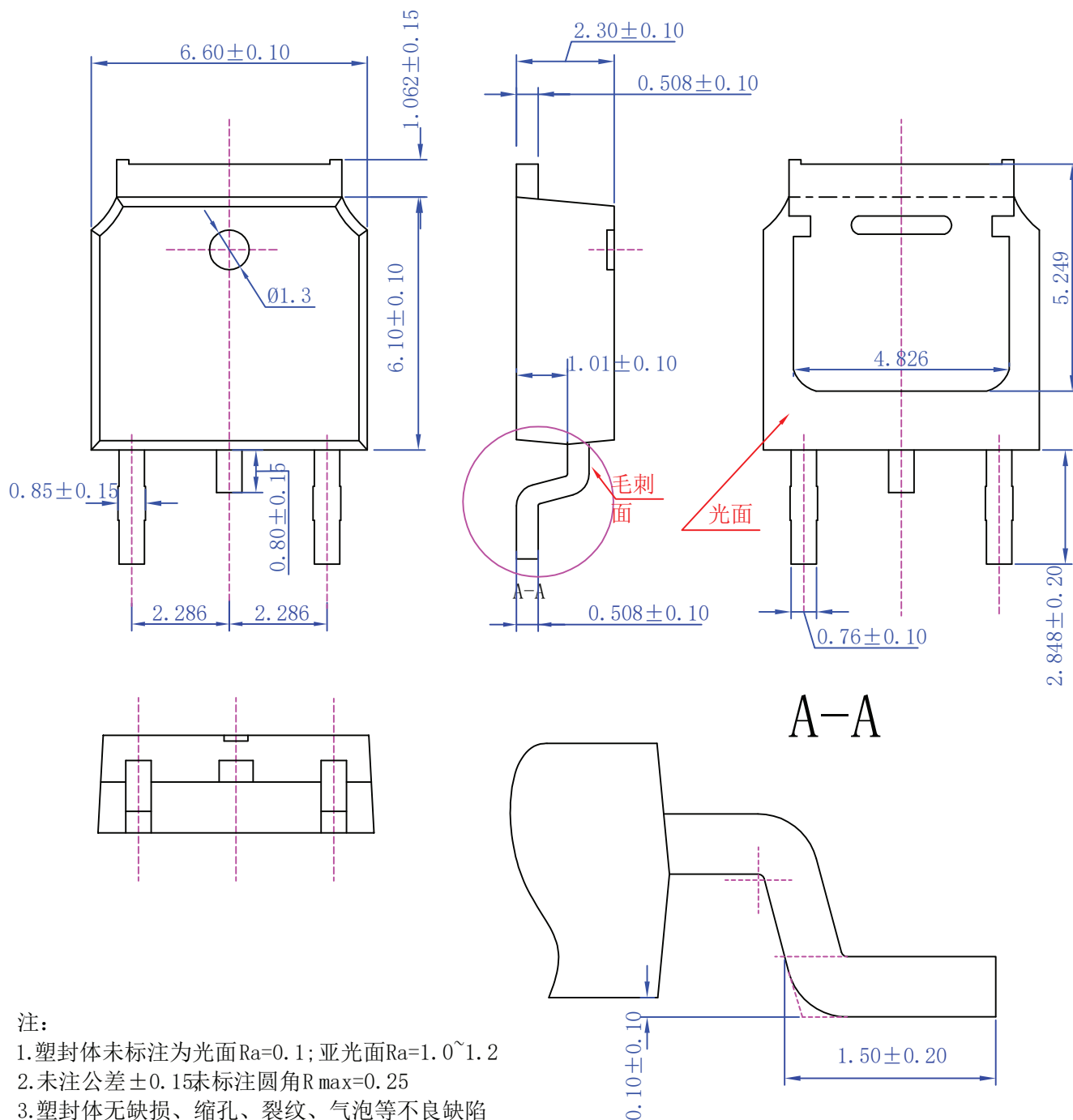
Typical Characteristics



Package Dimension

TO-252

Unit :mm



注:

1. 塑封体未标注为光面 $Ra=0.1$; 亚光面 $Ra=1.0 \sim 1.2$
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

