

CMD60N68K/CMU60N68K

68V N-Channel MOSFET

General Description

The 60N68K uses advanced technology and design to provide excellent $R_{DS(on)}$. This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- Low On-Resistance
- 100% Avalanche Tested
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	68	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	60	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	48	A
I_{DM}	Pulsed Drain Current ¹	240	A
EAS	Single Pulse Avalanche Energy ²	312	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	110	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	51	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.14	$^\circ\text{C/W}$

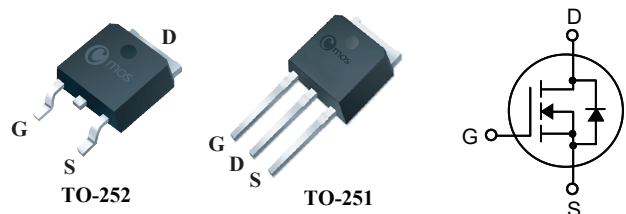
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
68V	11m Ω	60A

Applications

- LED controller
- Power Supplies
- DC-DC Converters

TO-252/251 Pin Configuration



Type	Package	Marking
CMD60N68K	TO-252	CMD60N68K
CMU60N68K	TO-251	CMU60N68K

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	68	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	---	11	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	1	μA
		$V_{DS}=60V$, $V_{GS}=0V$, $T_J=125^{\circ}\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	20	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.0	---	Ω
Q_g	Total Gate Charge	$V_{DS}=54V$, $V_{GS}=10V$, $I_D=30A$ (note 3,4)	---	47	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=34V$, $V_{GS}=10V$, $R_G=4.7\Omega$ $I_D=30A$ (note 3,4)	---	15	---	ns
T_r	Rise Time		---	45	---	
$T_{d(off)}$	Turn-Off Delay Time		---	35	---	
T_f	Fall Time		---	15	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3000	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	170	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	60	A
I_{SM}	Pulsed Source Current		---	---	240	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.87	1.2	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	13	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{GS} = 0V$, $I_S = 30A$	---	4	---	nC

Note :

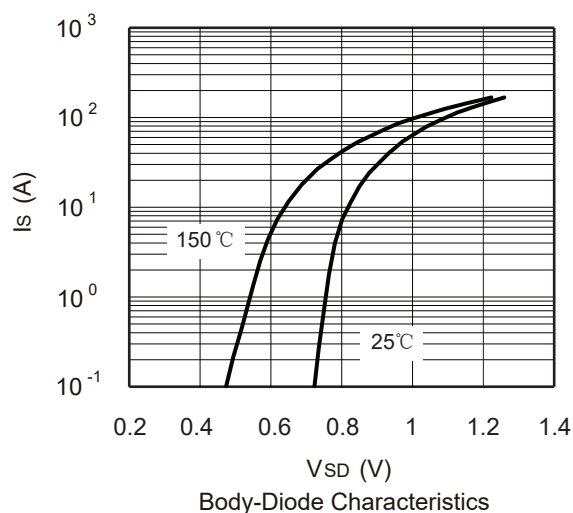
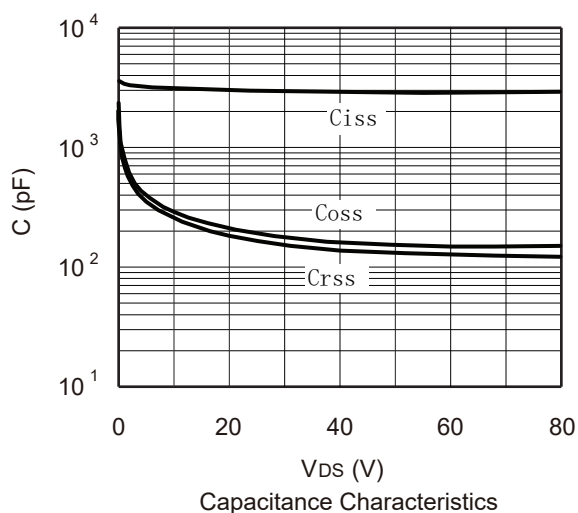
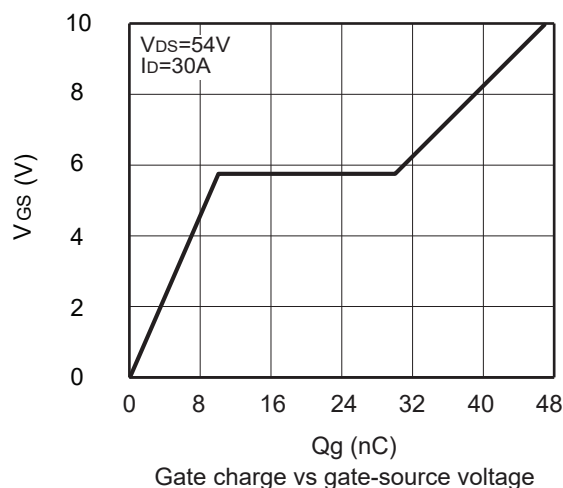
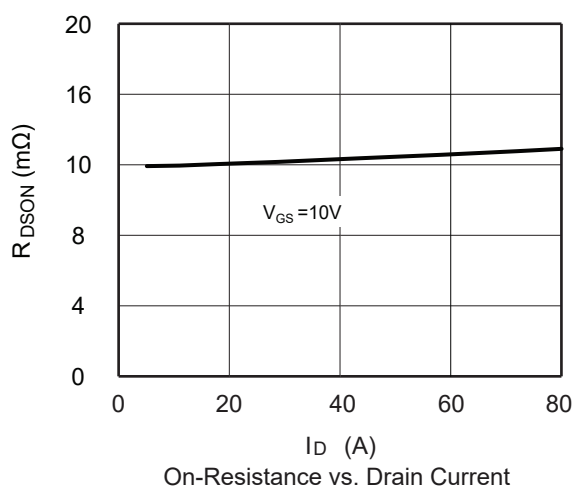
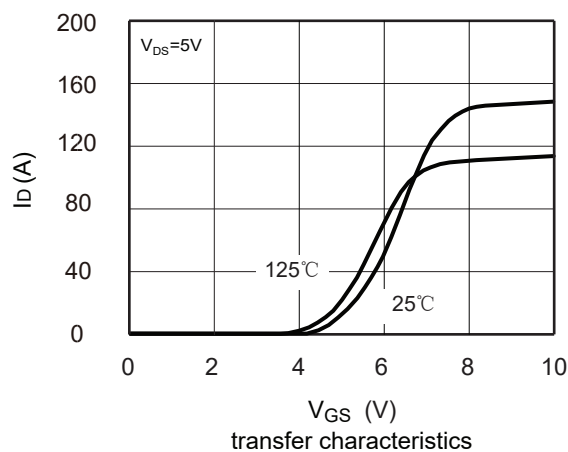
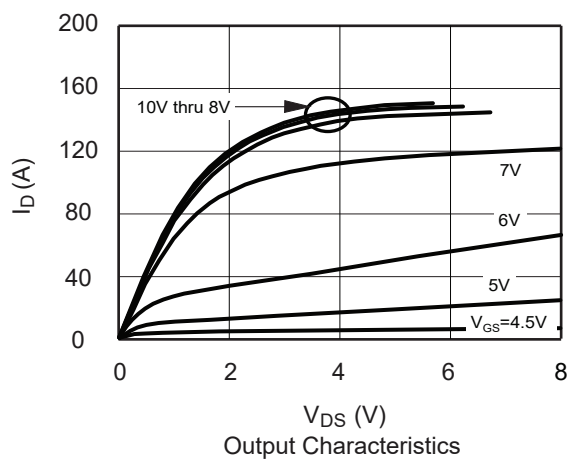
1. Repetitive rating : pulse width limited by junction temperature.
2. The EAS data shows Max. rating . The test condition is $V_{DD}=20V$, $V_{GS}=10V$, $L=1.0\text{mH}$, $I_{AS}=25A$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

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

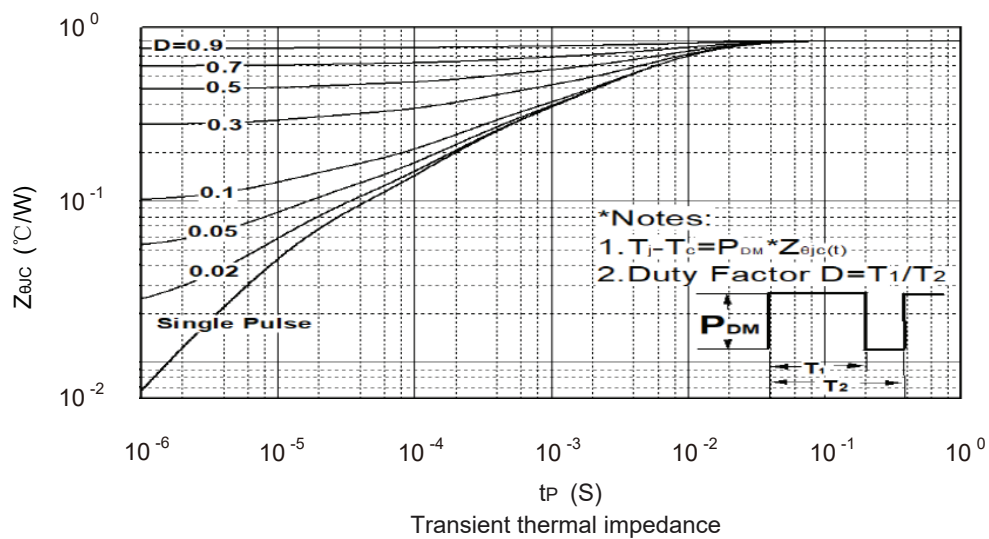
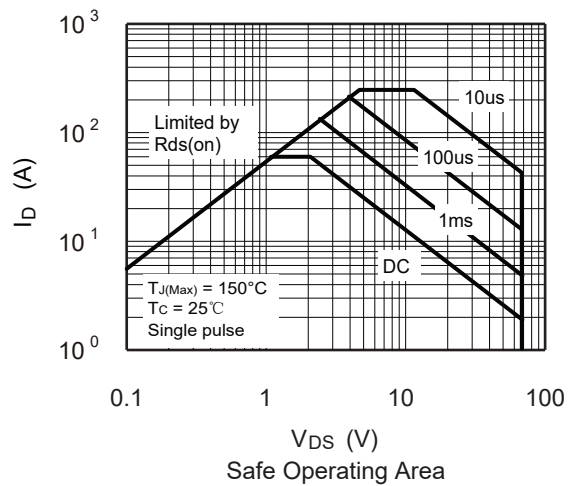
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Cmos reserves the right to improve product design , functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics



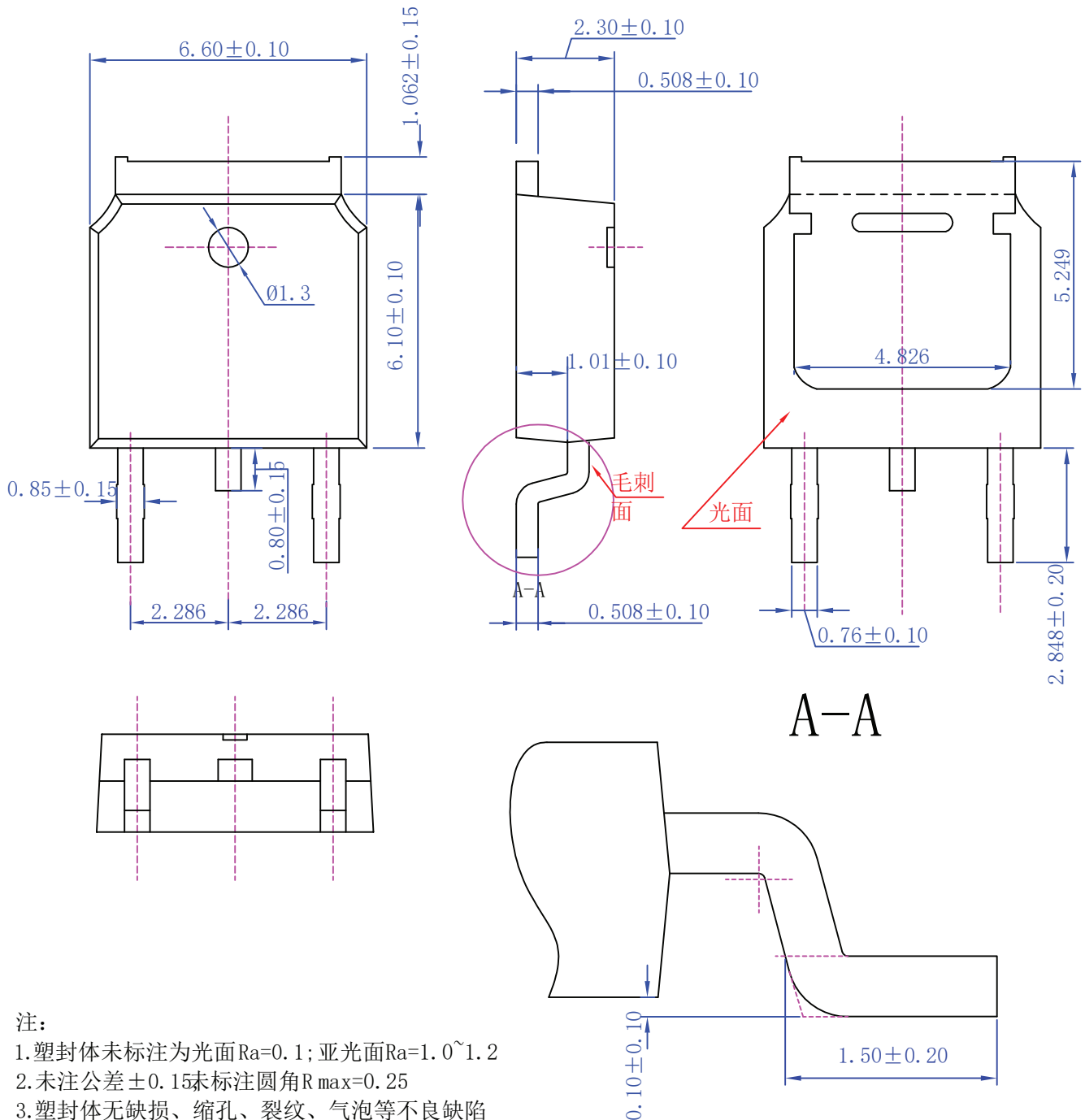
Typical Characteristics



Package Dimension

TO-252

Unit :mm



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

