

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for use as a load switch or in PWM applications.

Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	-90	A
I_{DM}	Pulsed Drain Current	-360	A
EAS	Single Pulse Avalanche Energy ¹	722	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case (Drain)	---	1.0	°C/W

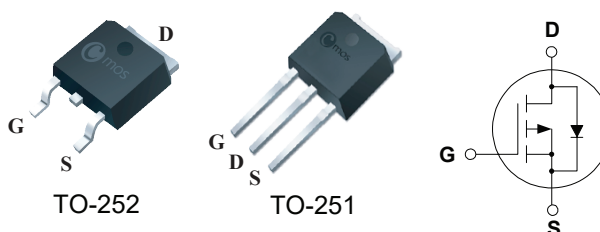
Product Summary

BVDSS	RDS(on) max.	ID
-40V	6.8mΩ	-90A

Applications

- DC-DC Converters
- Load Switches
- BLDC Motor driver

TO-252 / 251 Pin Configuration



Type	Package	Marking
CMD90P04B	TO-252	CMD90P04B
CMU90P04B	TO-251	CMU90P04B

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	-40	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V , I _D =-20A	---	5.6	6.8	mΩ
		V _{GS} =-4.5V , I _D =-15A	---	7.1	8.5	
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} =-32V , V _{GS} =0V , T _J =25°C	---	---	-1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-5 V , I _D =-10A	---	42	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	2.2	---	Ω
Q _g	Total Gate Charge	V _{DS} =-20V , I _D =-20A V _{GS} =-10V	---	58	---	nC
Q _{gs}	Gate-Source Charge		---	10	---	
Q _{gd}	Gate-Drain Charge		---	8	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =-20V , V _{GS} =-10V , R _{GS} =1.6Ω I _D =-20A	---	11	---	ns
T _r	Rise Time		---	5	---	
T _{d(off)}	Turn-Off Delay Time		---	36	---	
T _f	Fall Time		---	6	---	
C _{iss}	Input Capacitance	V _{DS} =-10V , V _{GS} =0V , f=1MHz	---	7500	---	pF
C _{oss}	Output Capacitance		---	882	---	
C _{rss}	Reverse Transfer Capacitance		---	640	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	-90	A
I _{SM}	Pulsed Source Current		---	---	-360	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =-20A	---	---	-1.2	V

Note :

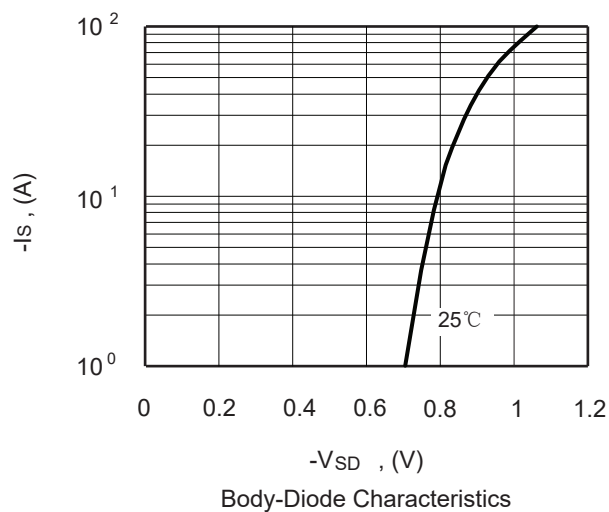
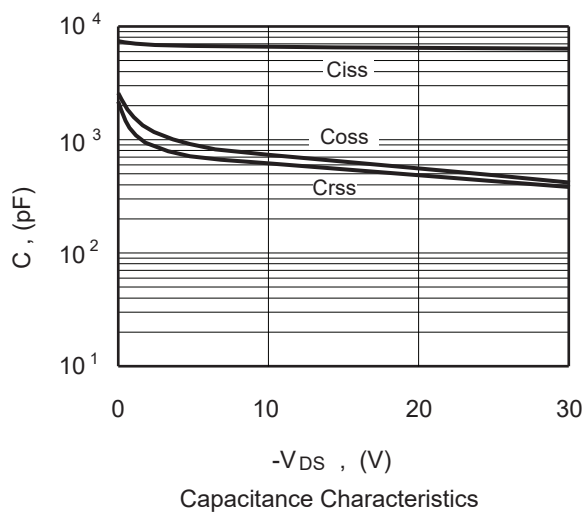
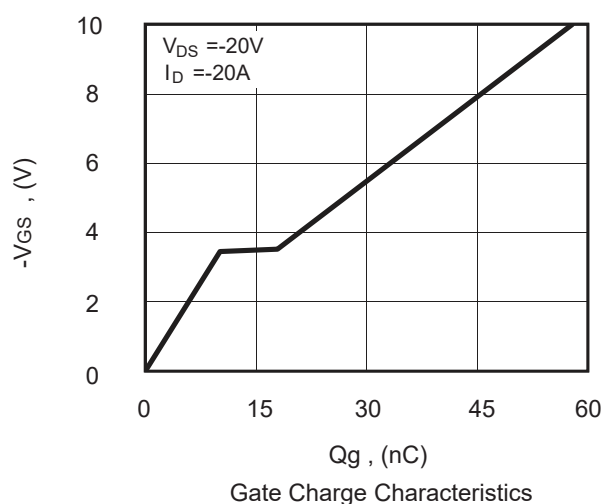
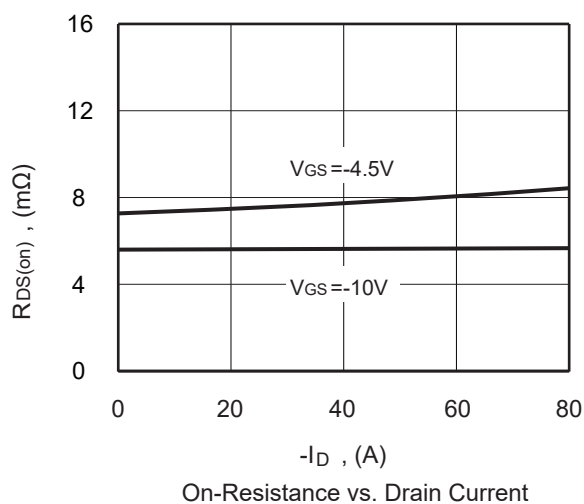
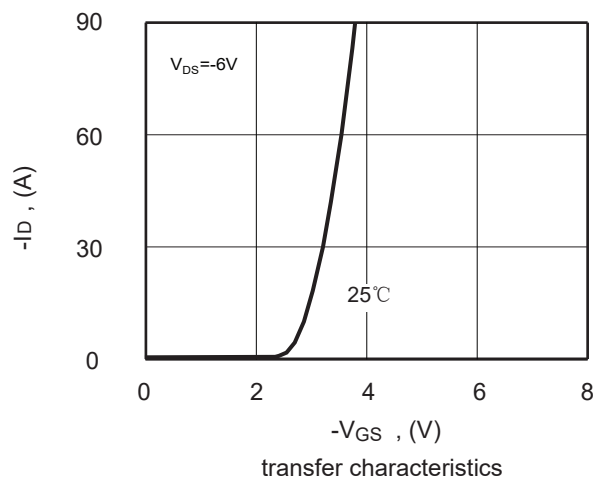
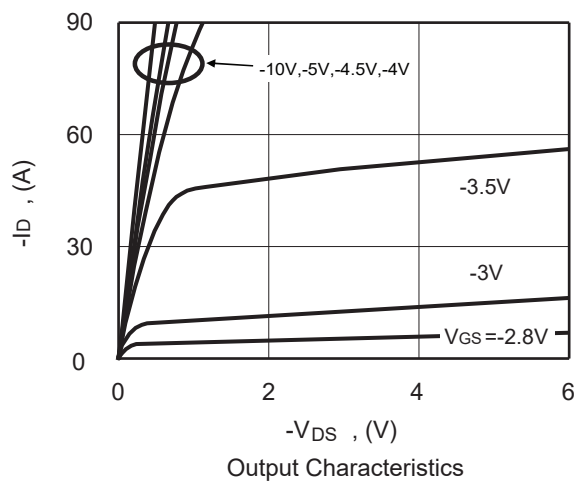
1.The EAS data shows Max. rating . The test condition is V_{DD}=30V , V_{GS}=10V , L=1mH , I_{AS}=38A.

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

Cmos assumes no liability for customers' product design or applications.

Cmos reserve the right to improve product design ,functions and reliability wihout notice.Please refer to the latest version of specification.

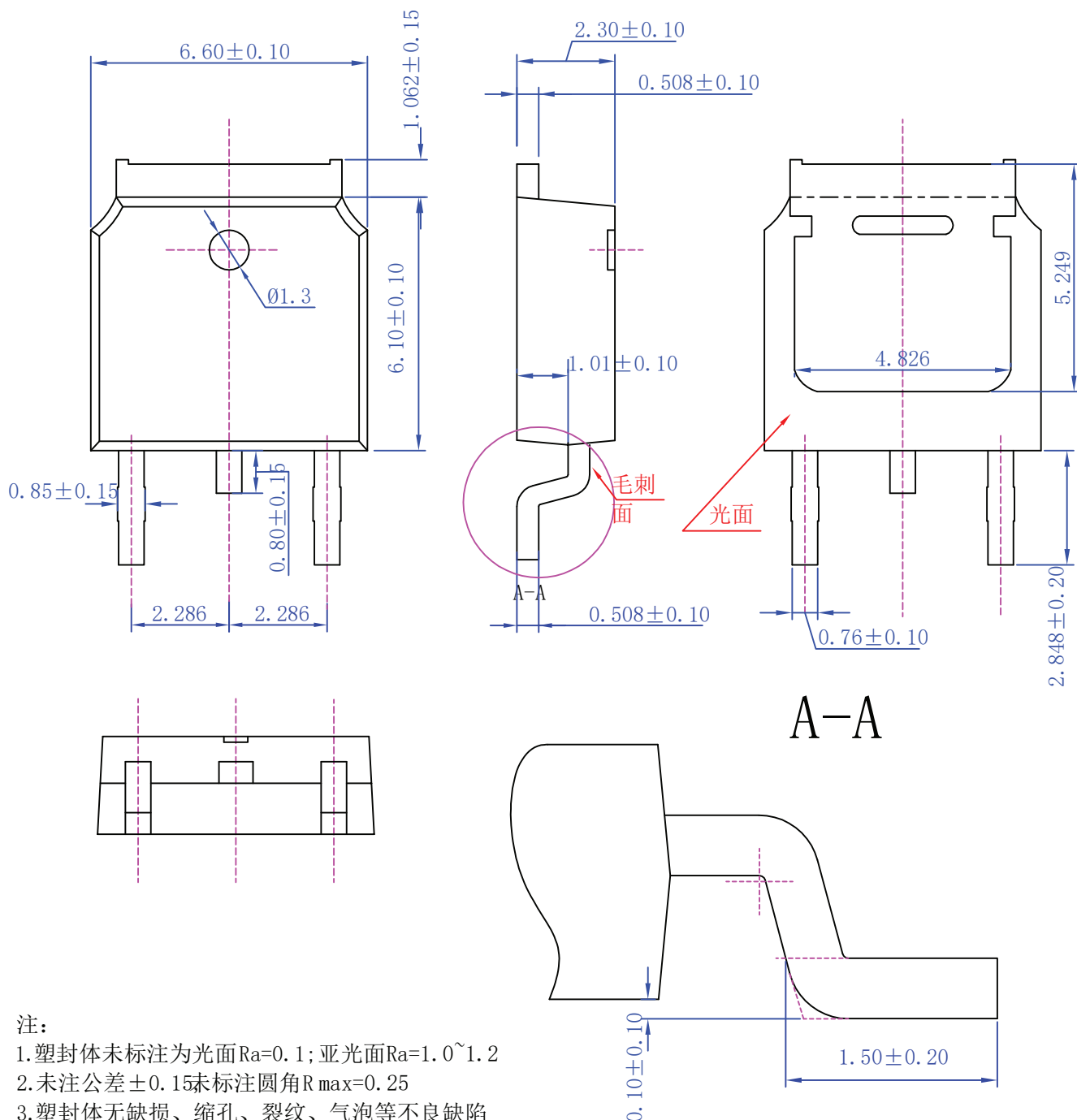
Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

