

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

- P-Channel MOSFET
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

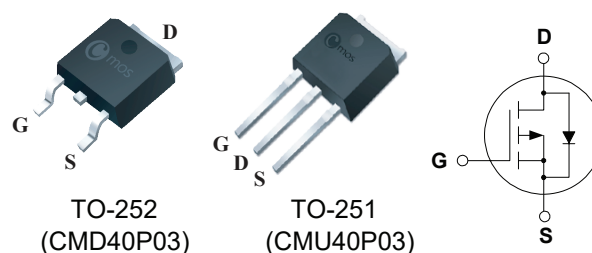
Product Summary

BVDSS	R _{DS(on)} max.	ID
-30V	29mΩ	-30A

Applications

- DC-DC Converters
- Desktop PCs
- LED controller

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°C	Continuous Drain Current ¹	-30	A
I _D @T _C =100°C	Continuous Drain Current ¹	-18	A
I _{DM}	Pulsed Drain Current ²	-120	A
EAS	Single Pulse Avalanche Energy ³	144	mJ
P _D @T _C =25°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 _{θJA}	Thermal Resistance Junction-ambient ¹	---	70	°C/W
R _{θJC}	Thermal Resistance Junction -Case ¹	---	3.5	°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 ²	$V_{GS}=-10V$, $I_D=-12A$	---	20	29	mΩ
		$V_{GS}=-4.5V$, $I_D=-8A$	---	---	37	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-30V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
		$V_{DS}=-24V$, $V_{GS}=0V$, $T_J=150^{\circ}\text{C}$	---	---	-25	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-10A$	---	18	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	70	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-24V$, $V_{GS}=-4.5V$, $I_D=-18A$	---	14	---	nC
Q_{gs}	Gate-Source Charge		---	3.5	---	
Q_{gd}	Gate-Drain Charge		---	8.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-15V$, $V_{GS}=-10V$, $R_G=3.3\Omega$ $I_D=-18A$	---	14	---	ns
T_r	Rise Time		---	58	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	60	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1900	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	140	---	

Diode Characteristics

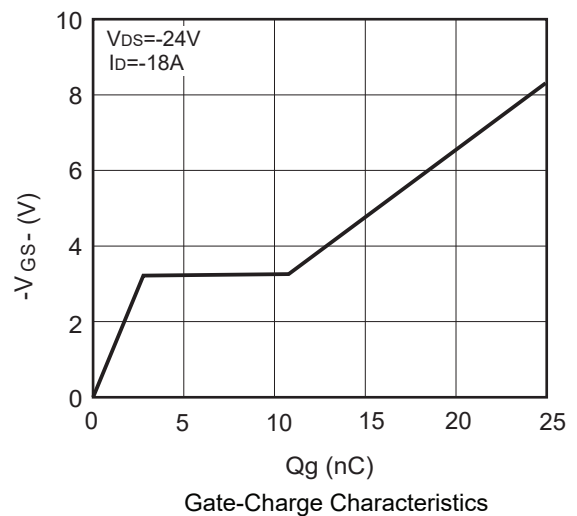
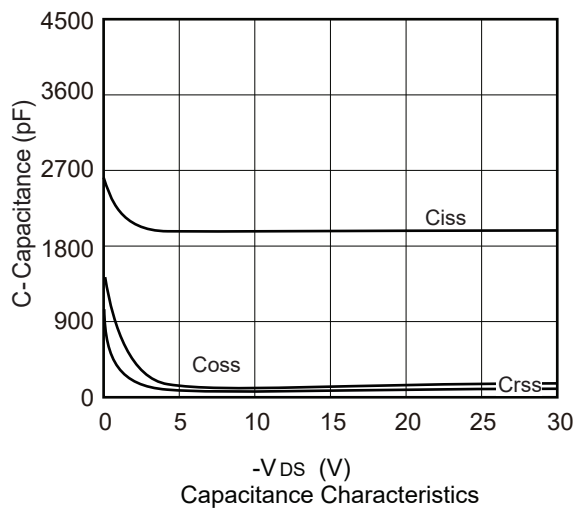
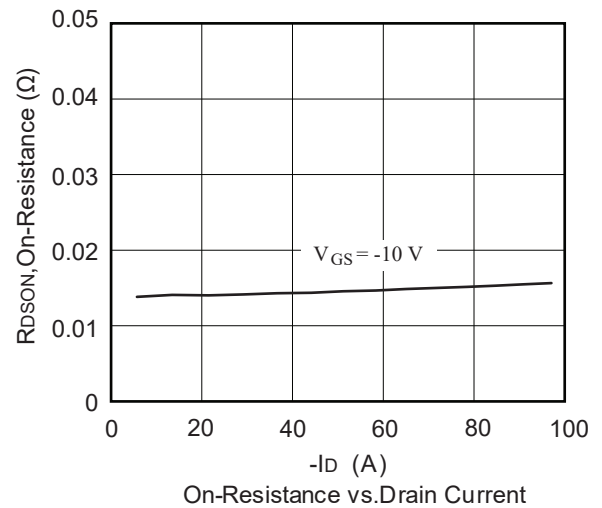
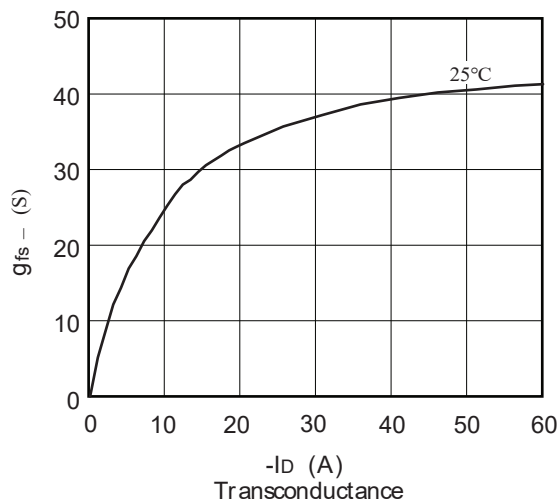
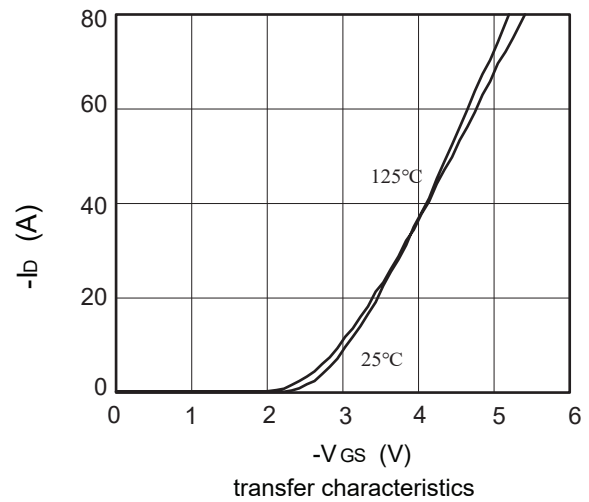
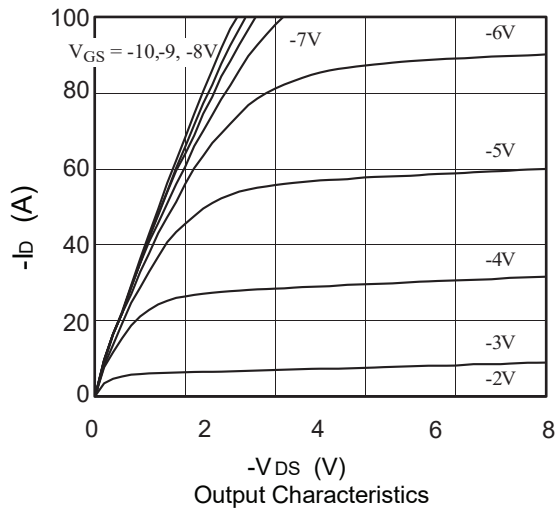
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current ¹	$V_G=V_D=0V$, Force Current	---	---	-30	A
I_{SM}	Pulsed Source Current ²		---	---	-120	A
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V$, $I_S=-8A$	---	---	-1.2	V

Note :

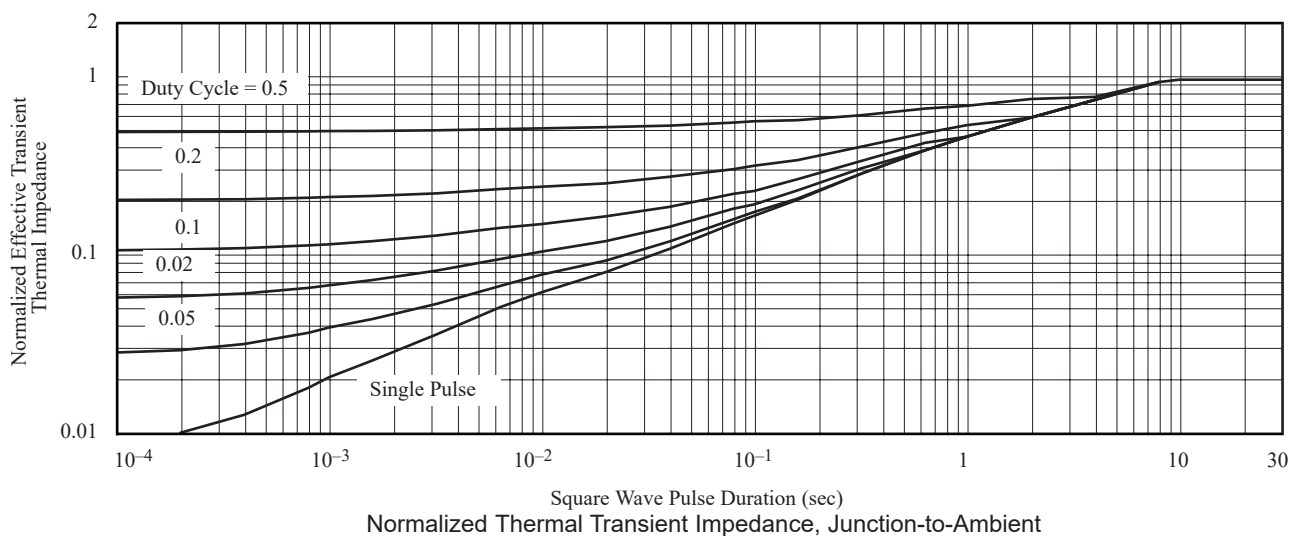
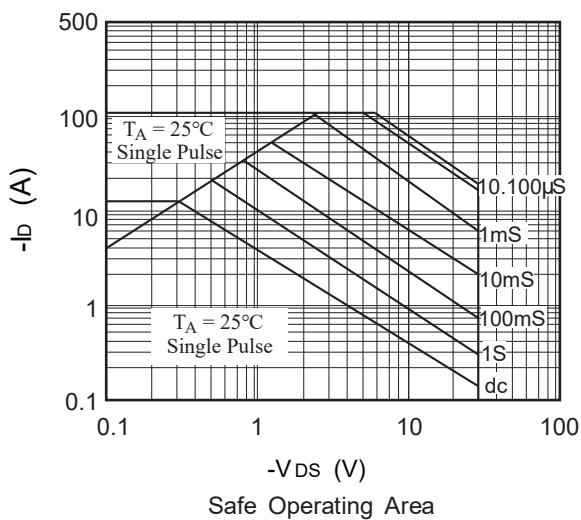
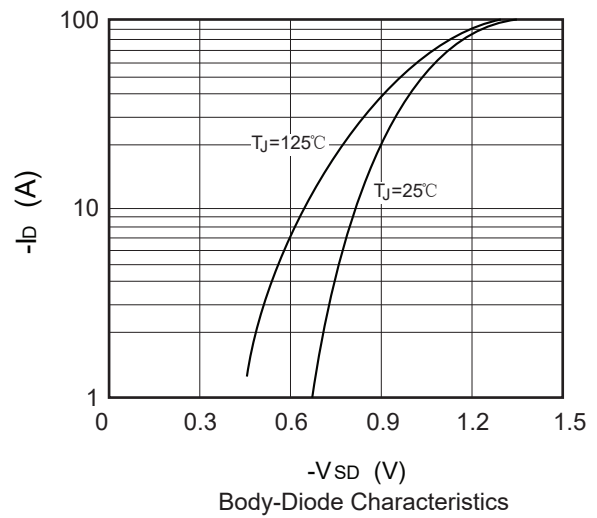
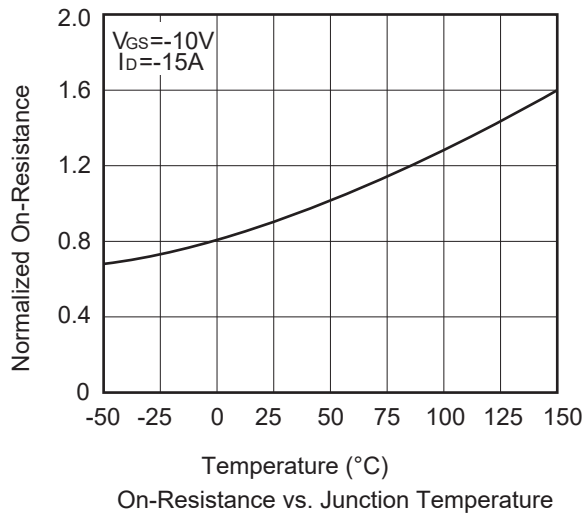
- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3.The EAS data shows Max. rating . The test condition is $V_{DD}=-25V$, $V_{GS}=-10V$, $L=0.5mH$, $I_D=-24A$

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.

Typical Characteristics



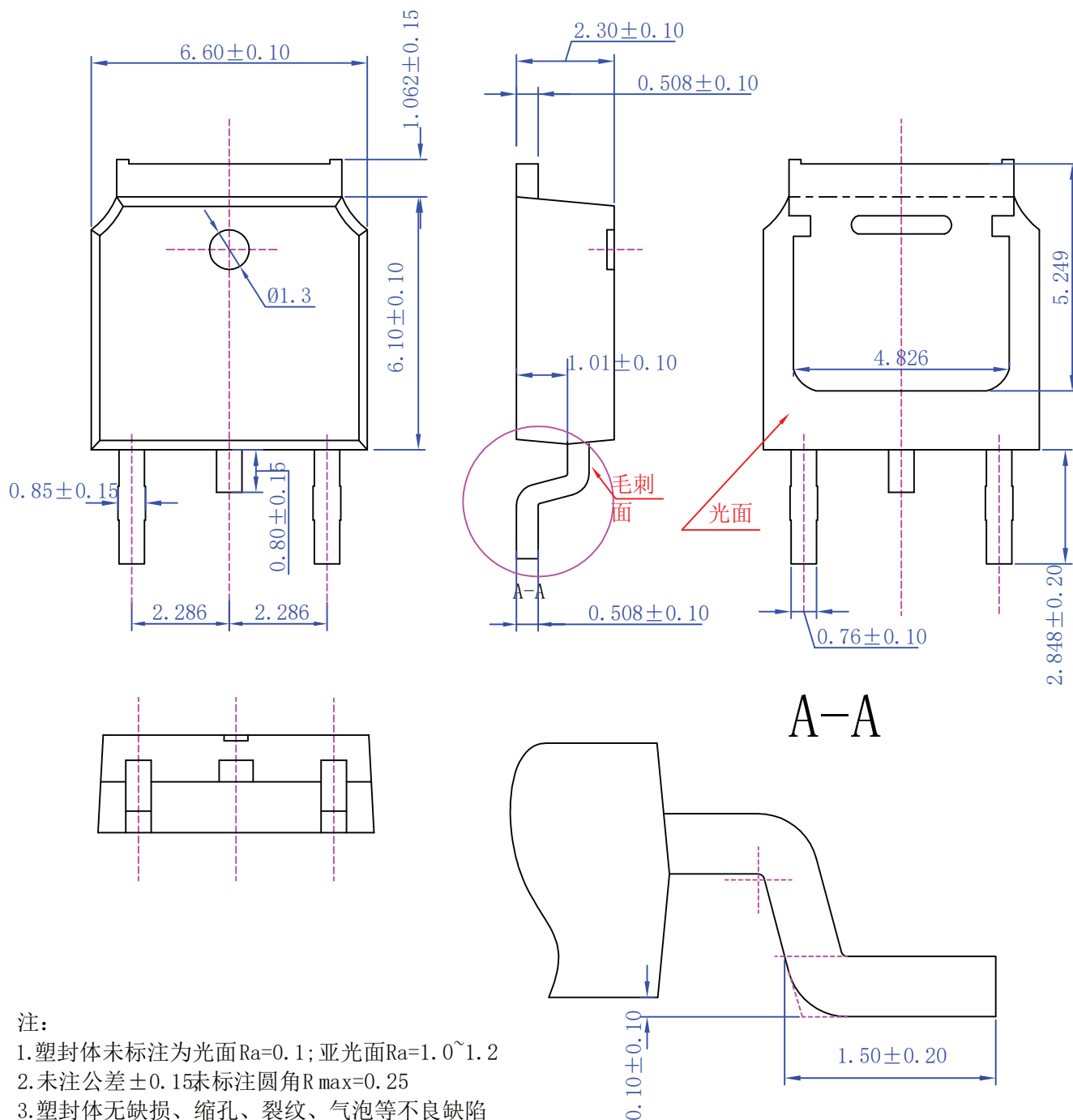
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Unit :mm

