

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . this device ideal for use in power management circuitry. Typical applications are PWM DC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

Features

- Simple Drive Requirement
- Lower On-resistance
- 100% EAS Guaranteed
- RoHS Compliant

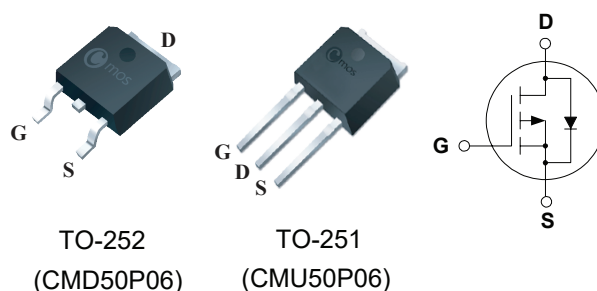
Product Summary

BVDSS	R _{DS(on)} max.	ID
-60V	25mΩ	-50A

Applications

- DC-DC Converters
- Power Management in Note book
- Load Switch

TO-252 /251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-50	A
I _D @T _C =100°C	Continuous Drain Current	-32	A
I _{DM}	Pulsed Drain Current	-200	A
EAS	Single Pulse Avalanche Energy ¹	338	mJ
P _D @T _C =25°C	Total Power Dissipation	85	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 ²	---	50	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.47	°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	$V_{GS}=0V$, $I_D=-250\mu A$	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ³	$V_{GS}=-10V$, $I_D=-20A$	---	---	25	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-15A$	---	---	40	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-60V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
		$V_{DS}=-60V$, $V_{GS}=0V$, $T_J=125^{\circ}\text{C}$	---	---	-50	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance ³	$V_{DS}=-10V$, $I_D=-20A$	---	19	---	S
Q_g	Total Gate Charge	$V_{DS}=-30V$, $I_D=-50A$ $V_{GS}=-10V$	---	100	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	24	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-30V$, $V_{GS}=-10V$, $R_L=0.6\Omega$ $I_D=-50A$, $R_G=6\Omega$	---	20	---	ns
T_r	Rise Time		---	100	---	
$T_{d(off)}$	Turn-Off Delay Time		---	200	---	
T_f	Fall Time		---	200	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	4600	---	pF
C_{oss}	Output Capacitance		---	250	---	
C_{rss}	Reverse Transfer Capacitance		---	120	---	

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 ³	$V_{GS}=0V$, $I_F=-20A$	---	-0.87	-1.2	V

Note :

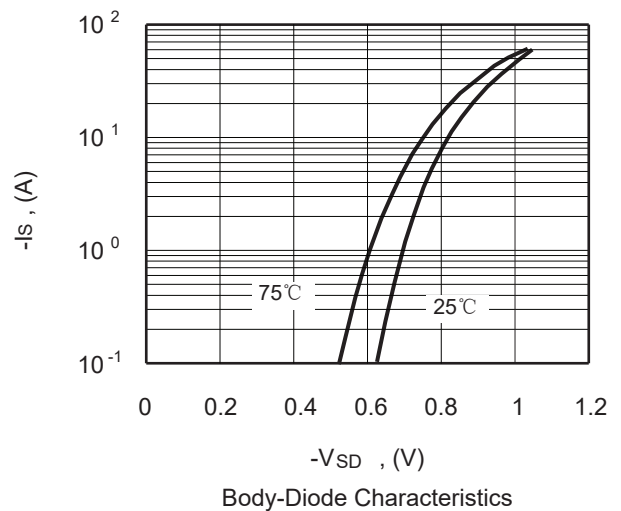
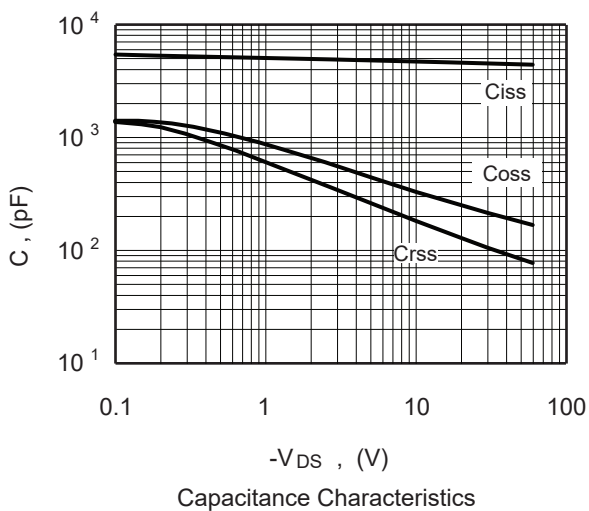
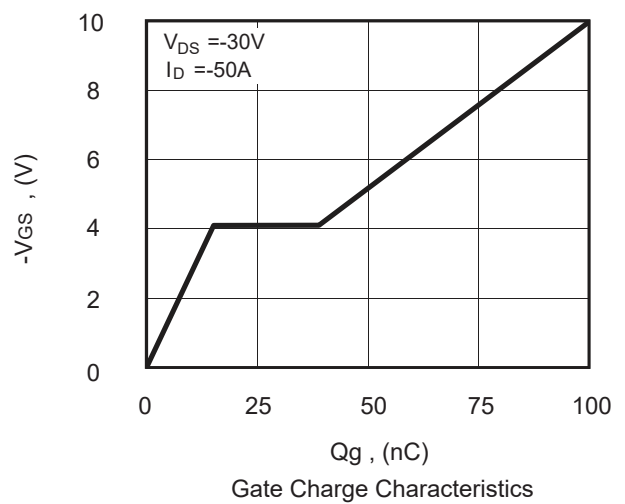
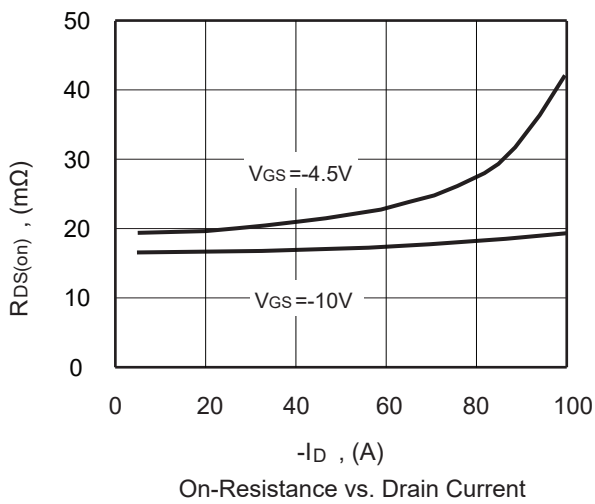
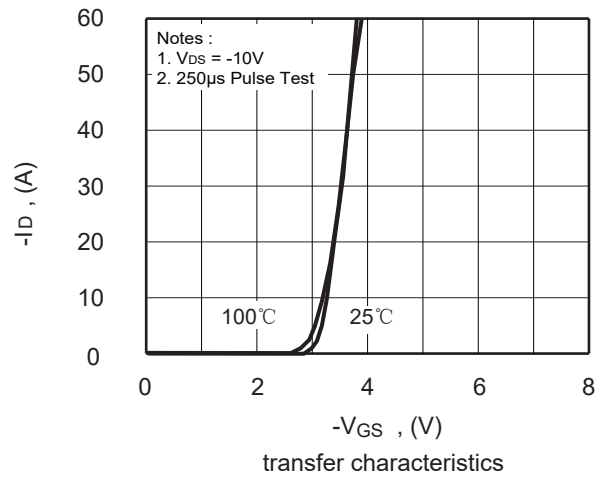
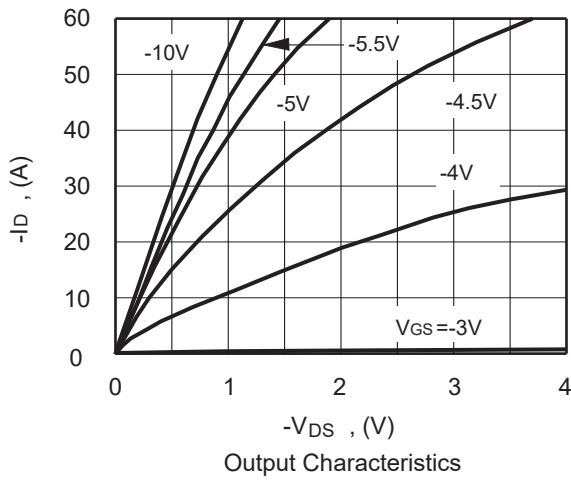
- 1.The EAS data shows Max. rating . The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_{AS}=-26A$.
2. When mounted on 1 " square PCB (FR-4 material).
3. Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

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

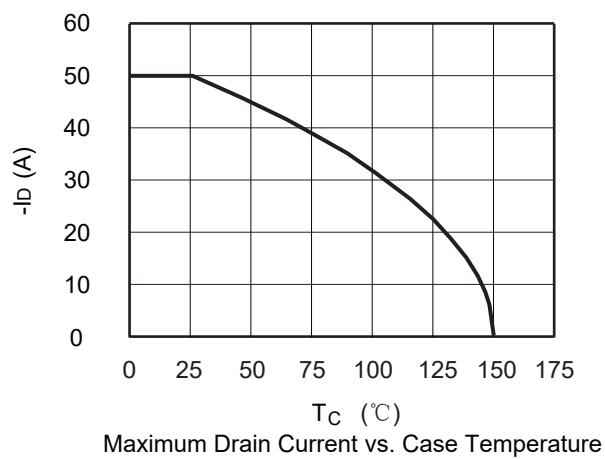
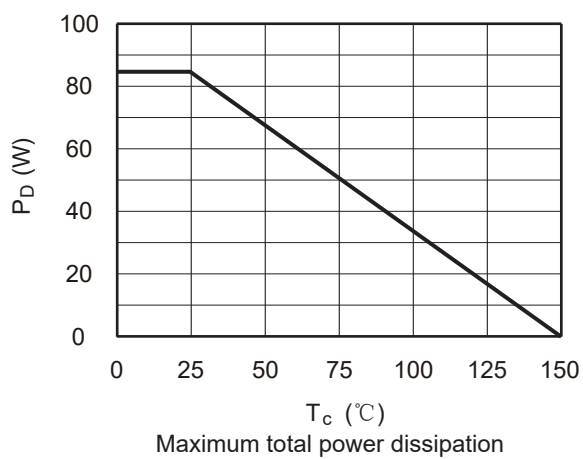
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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics



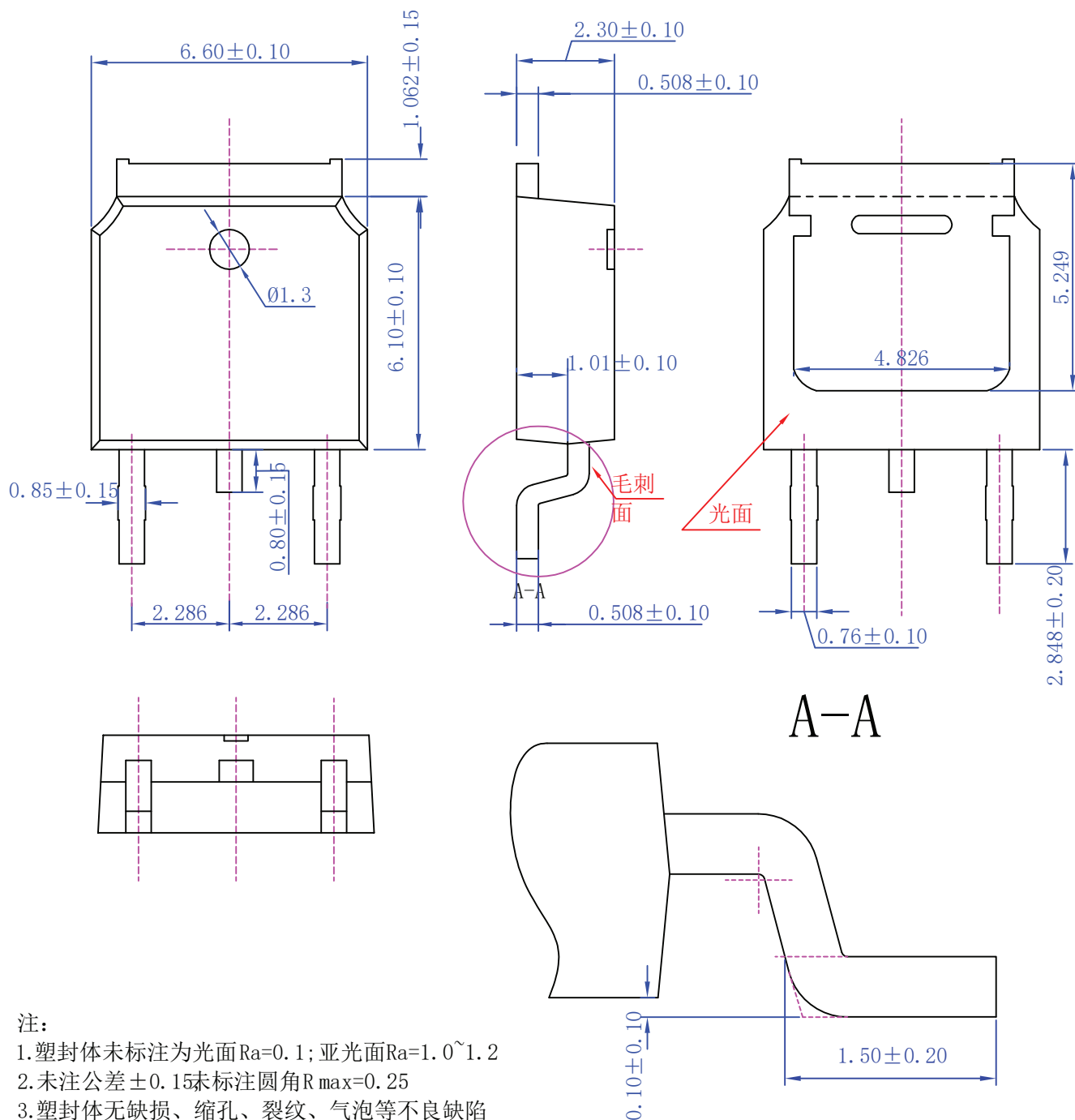
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

