

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	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	-80	A
I_{DM}	Pulsed Drain Current	-240	A
EAS	Single Pulse Avalanche Energy	225	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	70	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient	---	62.5	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case (Drain)	---	2.1	$^\circ\text{C}/\text{W}$

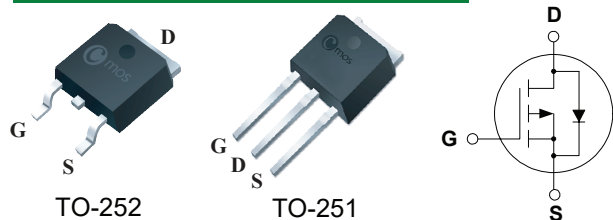
Product Summary

BVDSS	RDSON	ID
-20V	6.2m Ω	-80A

Applications

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

TO-252/251 Pin Configuration



Type	Package	Marking
CMD80P02B	TO-252	CMD80P02B
CMU80P02B	TO-251	CMU80P02B

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-20A$	---	---	6.2	$m\Omega$
		$V_{GS}=-2.5V$, $I_D=-15A$	---	---	8.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-0.5	---	-1.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-20A$	---	58	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5.3	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-10V$, $I_D=-15A$ $V_{GS}=-4.5V$	---	47	---	nC
Q_{gs}	Gate-Source Charge		---	8	---	
Q_{gd}	Gate-Drain Charge		---	11	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-10V$, $V_{GS}=-10V$, $R_{GS}=2.7\Omega$ $I_D=-14A$	---	9	---	ns
T_r	Rise Time		---	60	---	
$T_{d(off)}$	Turn-Off Delay Time		---	112	---	
T_f	Fall Time		---	44	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3550	---	pF
C_{oss}	Output Capacitance		---	365	---	
C_{rss}	Reverse Transfer Capacitance		---	360	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-80	A
I_{SM}	Pulsed Source Current		---	---	-240	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-20A$	---	---	-1.2	V

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