

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	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	-120	A
I_{DM}	Pulsed Drain Current	-360	A
EAS	Single Pulse Avalanche Energy	340	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	65	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	$^\circ\text{C/W}$
$R_{\theta JC}$	Junction-to-Case (Drain)	---	2.0	$^\circ\text{C/W}$

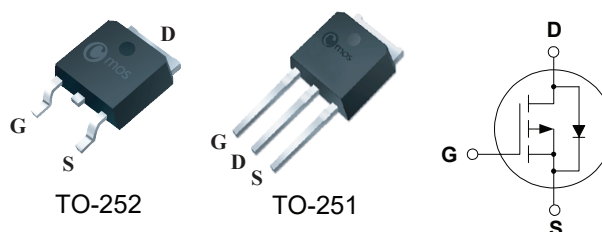
Product Summary

BVDSS	RDSON	ID
-30V	4.2m Ω	-120A

Applications

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

TO-252 / 251 Pin Configuration



Type	Package	Marking
CMD170P03	TO-252	CMD170P03
CMU170P03	TO-251	CMU170P03

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	$V_{GS}=-10V$, $I_D=-28A$	---	---	4.2	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-25A$	---	---	6.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1.0	---	-3.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-24V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	30	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.0	---	Ω
Q_g	Total Gate Charge	$V_{DD}=-15V$, $I_D=-30A$ $V_{GS}=-10V$	---	40	---	nC
Q_{gs}	Gate-Source Charge		---	9	---	
Q_{gd}	Gate-Drain Charge		---	11	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-15V$, $V_{GS}=-10V$, $R_G=2.5\Omega$ $I_D=-30A$	---	14	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	70	---	
T_f	Fall Time		---	28	---	
C_{iss}	Input Capacitance	$V_{DS}=-15V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7000	---	pF
C_{oss}	Output Capacitance		---	1000	---	
C_{rss}	Reverse Transfer Capacitance		---	767	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-120	A
I_{SM}	Pulsed Source Current		---	---	-360	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-28A$	---	---	-1.2	V

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