CMD75P02/CMU75P02

-20V, 6.2mΩ typ., -75A P-Channel MOSFET

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.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-20V	7.3mΩ	-75A

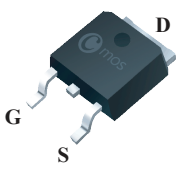
Applications

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

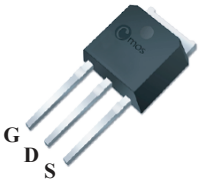
Features

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

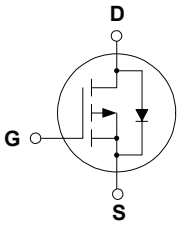
TO-252 / 251 Pin Configuration



TO-252
(CMD75P02)



TO-251
(CMU75P02)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Sou ce Voltage	±12	V
I_D@T_C=25℃	Continuous Drain Current	-75	A
I_{DM}	Pulsed Drain Current	-225	A
EAS	Single Pulse Avalanche Energy	400	mJ
P_D@T_C=25℃	Total Power Dissipation	60	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

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

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Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-4.5V, I_D=-15A	---	6.2	7.3	mΩ
		V_{GS}=-2.5V, I_D=-15A	---	8.1	10	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-0.5	---	-1.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-16V, V_{GS}=0V , T_J=25℃	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±12V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-5V , I_D=-10A	---	23	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	11	---	Ω
Q_g	Total Gate Charge	V_{DS}=-10V , I_D=-24A V_{GS}=-4.5V	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	13	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=-10V, V_{GS}=-4.5V, R_{GS}=6Ω I_D=-1A	---	25	---	ns
T_r	Rise Time		---	55	---	
$T_{d(off)}$	Turn-Off Delay Time		---	150	---	
T_f	Fall Time		---	65	---	
C_{iss}	Input Capacitance	V_{DS}=-10V, V_{GS}=0V , f=1MHz	---	5300	---	pF
C_{oss}	Output Capacitance		---	600	---	
C_{rss}	Reverse Transfer Capacitance		---	510	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-75	A
I_{SM}	Pulsed Source Current		---	---	-225	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=-20A	---	---	-1.2	V

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