CMD16N25/CMU16N25

250V N-Channel MOSFET

General Description

This Power MOSFET is produced using Cmos's advanced planar stripe DMOS technology.
This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switched mode power supplies, active power factor correction based on half bridge topology.

Features

- 16A,250V,$R_{DS(ON)}$<250mΩ @ V_{GS}=10V
- 100% avalanche tested
- Simple Drive Requirements
- RoHS Compliant

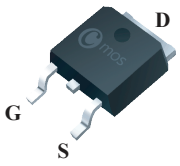
Product Summary

BVDSS	RDSON	ID
250V	250mΩ	16A

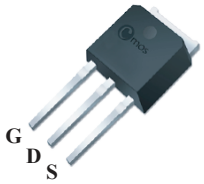
Applications

- PWM Motor Controls
- LED TV
- DC-DC Converters

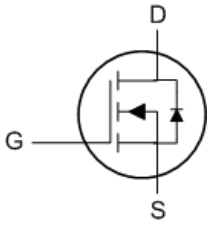
TO-252/251 Pin Configuration



TO-252
(CMD16N25)



TO-251
(CMU16N25)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	250	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Continuous Drain Current	16	A
I_D@T_C=100℃	Continuous Drain Current	7.2	A
I_{DM}	Pulsed Drain Current	64	A
EAS	Single Pulse Avalanche Energy	350	mJ
I_{AR}	Avalanche Current	27	A
P_D@T_C=25℃	Total Power Dissipation	35	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	3.57	℃/W

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, T_J=25℃	250	---	---	V
BV_{DSS} /ΔTJ	Zero Gate Voltage Drain Current	I_D=250μA, V_{GS}=0V	---	0.31	---	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=8A	---	210	250	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}= 250V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±30V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V, I_D=8A	---	11	---	S
Q_g	Total Gate Charge	V_{DS}=200V, V_{GS}=10V, I_D=16A	---	23	---	nC
Q_{gs}	Gate-Source Charge		---	7	---	
Q_{gd}	Gate-Drain Charge		---	6.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=125V, V_{GS} =10V , R_G=25Ω I_D=16A	---	18	---	ns
T_r	Rise Time		---	30	---	
$T_{d(off)}$	Turn-Off Delay Time		---	133	---	
T_f	Fall Time		---	40	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1200	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	55	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	16	A
I_{SM}	Pulsed Source Current		---	---	64	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=15A, T_J=25℃	---	---	1.4	V
t_{rr}	Reverse Recovery Time	I_F=16A, V_{GS}=0V dI /dt=100A/μs	---	208	---	ns
Q_{rr}	Reverse Recovery Charge		---	1.63	---	nC

Note :

1.Starting T_J = 2 5℃ , L= 1mH , V_{DD} = 150V , I_{AS} =27A.

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