CMD85N03A/CMU85N03A

N-Channel MOSFET

General Description

The 85N03A uses advanced trench technology to provide excellent RDS(ON). This device is suitable for use as a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
30V	6mΩ	85A

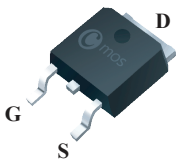
Applications

- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch

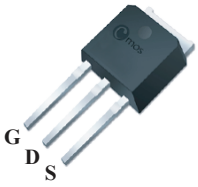
Features

- Low On-Resistance
- 100% avalanche tested
- High Current Capability
- RoHS Compliant

TO-252/251 Pin Configuration



TO-252
(CMD85N03A)



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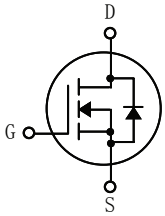

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, VGS @ 10V	85	A
I_D@T_C=100℃	Continuous Drain Current, VGS @ 10V	60	A
I_{DM}	Pulsed Drain Current [1]	255	A
EAS	Single Pulse Avalanche Energy [2]	100	mJ
P_D@T_C=25℃	Total Power Dissipation	65	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (PCB Mount) [3]	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case [4]	---	2	℃/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	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=12A	---	---	6	mΩ
		V_{GS}=4.5V , I_D=10A	---	---	9	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=24V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=24V , V_{GS}=0V , T_J=125℃	---	---	150	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=10A	---	15	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.4	---	Ω
Q_g	Total Gate Charge	V_{DS}=15V , V_{GS}=4.5V , I_D=20A	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	4.2	---	
Q_{gd}	Gate-Drain Charge		---	7	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=15V , V_{GS} =10V , R_G=10Ω I_D =20A	---	12	---	ns
T_r	Rise Time		---	80	---	
$T_{d(off)}$	Turn-Off Delay Time		---	48	---	
T_f	Fall Time		---	35	---	
C_{iss}	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	2000	---	pF
C_{oss}	Output Capacitance		---	450	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current		---	---	85	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S =30A , T_J=25 ℃	---	---	1.3	V

Note :

1. Single pulse width limited by junction temperature $T_{J(MAX)}$=150 ℃ .

2.Starting T_J=25℃, L=0.5mH, V_{DD}=20V, I_{AS}=20A.

3.When mounted on 1" square PCB (FR-4 or G-10 Material).

4.Rθ is measured at TJ approximately at 90℃.

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