

General Description

The 85N03 uses advanced trench technology to provide excellent RDS(ON). This device is suitable for use as a wide variety of applications.

Features

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

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, $V_{GS} @ 10\text{V}$	70	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	50	A
I_{DM}	Pulsed Drain Current	210	A
EAS	Single Pulse Avalanche Energy	125	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient (PCB Mount)	---	50	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2	$^\circ\text{C}/\text{W}$

Product Summary

BVDSS	RDSON	ID
30V	6.8m Ω	70A

Applications

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

TO-252/251 Pin Configuration



Type	Package	Marking
CMD85N03	TO-252	CMD85N03
CMU85N03	TO-251	CMU85N03

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{D}}=250\text{uA}$	30	---	---	V
$\text{R}_{\text{DS(ON)}}$	Static Drain-Source On-Resistance	$\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_{\text{D}}=28\text{A}$	---	---	6.8	$\text{m}\Omega$
		$\text{V}_{\text{GS}}=4.5\text{V}$, $\text{I}_{\text{D}}=20\text{A}$	---	---	11	
$\text{V}_{\text{GS(th)}}$	Gate Threshold Voltage	$\text{V}_{\text{DS}}=\text{V}_{\text{GS}}$, $\text{I}_{\text{D}}=250\text{uA}$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$\text{V}_{\text{DS}}=24\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{T}_J=25^\circ\text{C}$	---	---	1	uA
		$\text{V}_{\text{DS}}=24\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{T}_J=125^\circ\text{C}$	---	---	150	
I_{GSS}	Gate-Source Leakage Current	$\text{V}_{\text{GS}}=\pm 20\text{V}$, $\text{V}_{\text{DS}}=0\text{V}$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$\text{V}_{\text{DS}}=5\text{V}$, $\text{I}_{\text{D}}=20\text{A}$	---	20	---	S
R_{g}	Gate Resistance	$\text{V}_{\text{DS}}=0\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{f}=1\text{MHz}$	---	2.4	---	Ω
Q_{g}	Total Gate Charge	$\text{V}_{\text{DS}}=15\text{V}$, $\text{V}_{\text{GS}}=4.5\text{V}$, $\text{I}_{\text{D}}=20\text{A}$	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	4.2	---	
Q_{gd}	Gate-Drain Charge		---	7	---	
$\text{T}_{\text{d(on)}}$	Turn-On Delay Time	$\text{V}_{\text{DD}}=15\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{R}_{\text{G}}=10\Omega$	---	12	---	ns
T_{r}	Rise Time		---	80	---	
$\text{T}_{\text{d(off)}}$	Turn-Off Delay Time		---	48	---	
T_{f}	Fall Time		---	35	---	
C_{iss}	Input Capacitance	$\text{V}_{\text{DS}}=15\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{f}=1\text{MHz}$	---	1200	---	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	$\text{V}_{\text{G}}=\text{V}_{\text{D}}=0\text{V}$, Force Current	---	---	70	A
V_{SD}	Diode Forward Voltage	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{s}}=28\text{A}$, $\text{T}_J=25^\circ\text{C}$	---	---	1.3	V

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