

### 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	$\pm 20$	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current, $V_{GS}$ @ 10V	70	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current, $V_{GS}$ @ 10V	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	$^\circ\text{C}/\text{W}$

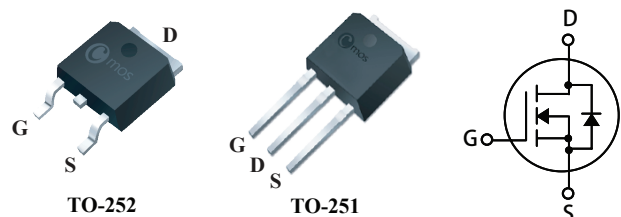
### Product Summary

BVDSS	RDSON	ID
30V	6.8m $\Omega$	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	$V_{GS}=0V$ , $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$ , $I_D=28A$	---	---	6.8	$m\Omega$
		$V_{GS}=4.5V$ , $I_D=20A$	---	---	11	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$ , $I_D=250\mu A$	1	---	3	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=24V$ , $V_{GS}=0V$ , $T_J=25^{\circ}\text{C}$	---	---	1	$\mu A$
		$V_{DS}=24V$ , $V_{GS}=0V$ , $T_J=125^{\circ}\text{C}$	---	---	150	
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V$ , $V_{DS}=0V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=5V$ , $I_D=20A$	---	20	---	S
$R_g$	Gate Resistance	$V_{DS}=0V$ , $V_{GS}=0V$ , $f=1\text{MHz}$	---	2.4	---	$\Omega$
$Q_g$	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	$V_{DD}=15V$ , $V_{GS}=10V$ , $R_G=10\Omega$ $I_D=20A$	---	12	---	ns
$T_r$	Rise Time		---	80	---	
$T_{d(off)}$	Turn-Off Delay Time		---	48	---	
$T_f$	Fall Time		---	35	---	
$C_{iss}$	Input Capacitance	$V_{DS}=15V$ , $V_{GS}=0V$ , $f=1\text{MHz}$	---	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	$V_G=V_D=0V$ , Force Current	---	---	70	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V$ , $I_S=28A$ , $T_J=25^{\circ}\text{C}$	---	---	1.3	V

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