

### General Description

The 75N68 uses advanced technology and design to provide excellent  $R_{DS(ON)}$ .

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

### Features

- Max  $r_{DS(on)} = 9.5\text{m}\Omega$  at  $V_{GS} = 10\text{V}$
- Fast Switching
- RoHS Compliant

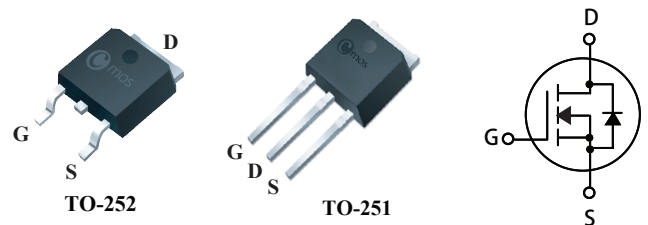
### Product Summary

BVDSS	RDSON	ID
68V	9.5mΩ	70A

### Applications

- Inverters
- Power Supplies

### TO-252/251 Pin Configuration



Type	Package	Marking
CMD75N68	TO-252	CMD75N68
CMU75N68	TO-251	CMU75N68

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	70	V
$V_{GS}$	Gate-Source Voltage	±20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	70	A
$I_D@T_C=100^\circ\text{C}$		56	A
$I_{DM}$	Pulsed Drain Current	280	A
$E_{AS}$	Drain-Source Avalanche Energy <sup>1</sup>	310	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	90	W
$T_{STG}$	Storage Temperature Range	-55 to 150	°C
$T_J$	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	60	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.4	°C/W

**Electrical Characteristics (T<sub>J</sub>=25°C , unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =250uA	68	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =10V , I <sub>D</sub> =20A	---	---	9.5	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250 uA	2	---	4	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =68V , V <sub>GS</sub> =0V	---	---	1	uA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V , V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance <sup>2</sup>	V <sub>DS</sub> =10V , I <sub>D</sub> =20A	---	16	---	S
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> =30A	---	67	---	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =54V	---	18	---	
Q <sub>gd</sub>	Gate-Drain Charge	V <sub>GS</sub> =10V	---	27	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =34V	---	21	---	ns
T <sub>r</sub>	Rise Time	I <sub>D</sub> =30A	---	59	---	
T <sub>d(off)</sub>	Turn-Off Delay Time	R <sub>GEN</sub> =4.7Ω	---	58	---	
T <sub>f</sub>	Fall Time	V <sub>GS</sub> =10V	---	26	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =34V , V <sub>GS</sub> =0V , f=1MHz	---	3500	---	pF
C <sub>oss</sub>	Output Capacitance		---	184	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	183	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current	---	---	70	A
I <sub>SM</sub>	Pulsed Source Current		---	---	280	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =20A	---	---	1.2	V

Notes:

- Starting T<sub>J</sub> = 25°C, L=0.5mH, I<sub>AS</sub> =35A, V<sub>DD</sub> = 30 V, V<sub>GS</sub> = 10 V.
- Pulse Test: Pulse Width < 300μs, Duty cycle < 2.0%.

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