CMD75N04/CMU75N04

N-Channel Enhancement Mode MOSFET

General Description

The 75N04 uses innovative packaging technology to provide excellent RDS(ON). This device is suitable for use as a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
40V	7.5mΩ	75A

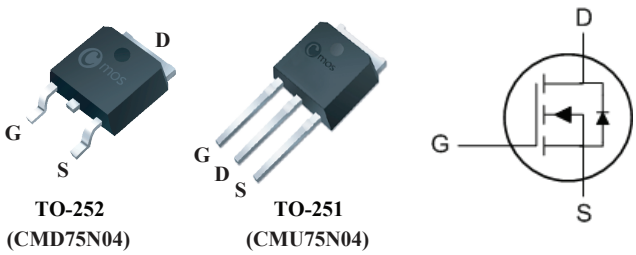
Applications

- DC/DC converter
- Powertrain Management
- Solenoid and Motor Drivers

Features

- N-channel Enhancement mode
- Low On-Resistance
- 100% Avalanche tested
- RoHS Compliant

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	75	A
I_D@T_C=100℃	Continuous Drain Current	53	A
I_{DM}	Pulsed Drain Current	300	A
EAS	Single Pulse Avalanche Energy	200	mJ
P_D@T_C=25℃	Total Power Dissipation	60	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	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.6	℃/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=250μA	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=20A	---	6.5	7.5	mΩ
		V_{GS}=4.5V, I_D=20A	---	8	11	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=40V , V_{GS}=0V , T_j =25℃	---	---	1	uA
		V_{DS}=18V , V_{GS}=0V , T_j =85℃	---	---	20	
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5 V , I_D=20A	---	30	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge	V_{DD}=32V , V_{GS}=0 to 10V, I_D=75A	---	25	33	nC
Q_{gs}	Gate-Source Charge		---	12	---	
Q_{gd}	Gate-Drain Charge		---	3.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=20V , V_{GS} =10V , R_G=3.5Ω I_D =75A	---	7	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	6	---	
T_f	Fall Time		---	8	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	2400	---	pF
C_{oss}	Output Capacitance		---	490	---	
C_{rss}	Reverse Transfer Capacitance		---	15	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F = 20A	---	---	1.2	V

Note :
1.The test condition is V_{DD}=20V,V_{GS}=10V,L=0.5mH,I_{AS}=28A

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