CEP83A3/CEB83A3

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 83A3 is N-ch MOSFET with extreme high cell density , which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

Features

- Simple Drive Requirement
- Fast Switching
- Low On-Resistance

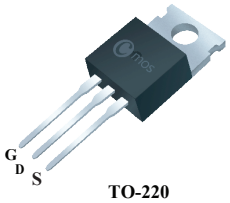
Product Summary

BVDSS	RDSON	ID
30V	4.8mΩ	100A

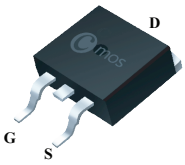
Applications

- LED power controller
- DC-DC & DC-AC converters
- High current, high speed swihching
- Solenoid and relay drivers
- Motor control, Audio amplifiers

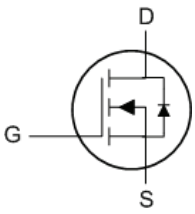
TO-220/263 Pin Configuration



TO-220
(CEP83A3)



TO-263
(CEB83A3)



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°C	Continuous Drain Current	100	A
I_D@T_C=100°C	Continuous Drain Current	56	A
I_{DM}	Pulsed Drain Current[1]	320	A
EAS	Single Pulse Avalanche Energy[2]	156	mJ
P_D@T_C=25°C	Total Power Dissipation	85	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	1.8	°C/W

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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=40A	---	4.5	4.8	mΩ
		V_{GS}=4.5V , I_D=20A	---	---	7	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	1.7	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V	---	---	1	uA
		V_{DS}=30V , V_{GS}=0V , T_C=125℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=23A	---	25	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.5	---	Ω
Q_g	Total Gate Charge	I_D=40 A V_{DS}=15V V_{GS}=5V	---	37	---	nC
Q_{gs}	Gate-Source Charge		---	7	---	
Q_{gd}	Gate-Drain Charge		---	18	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=15V I_D=40A R_G=4.7Ω V_{GS}=4.5V	---	30	---	ns
T_r	Rise Time		---	25	---	
$T_{d(off)}$	Turn-Off Delay Time		---	50	---	
T_f	Fall Time		---	22	---	
C_{iss}	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	2500	---	pF
C_{oss}	Output Capacitance		---	500	---	
C_{rss}	Reverse Transfer Capacitance		---	380	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	100	A
I_{SM}	Pulsed Source Current[1]		---	---	320	A
V_{SD}	Diode Forward Voltage[1]	V_{GS}=0V , I_S=40 A, T_J=25℃	---	---	1.2	V

Note :

1.The data tested by pulsed , pulse width≤300us , duty cycle≤2%

2.The test condition is V_{DD}=25V,V_{GS}=10V,L=0.5mH,I_{AS}=25A

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