CMP3710/CMB3710/CMI3710

100V N-Channel MOSFET

General Description

The 3710 uses advanced process technology and design to provide excellent RDS(ON).This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Product Summary

BVDSS	RDSON	ID
100V	25mΩ	57A

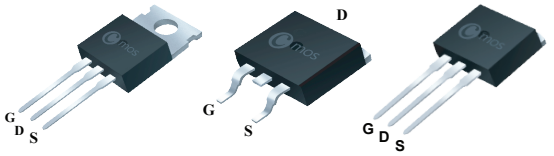
Applications

- DC-DC converters
- UPS
- Power Supply
- PWM Motor Controls

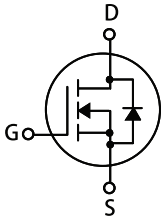
Features

- Fast Switching
- 100% Avalanche tested
- RoHS compliant

TO-220/263/262 Pin Configuration



TO-220 (CMP3710) TO-263 (CMB3710) TO-262 (CMI3710)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	57	A
I_D@T_C=100℃	Continuous Drain Current	40	A
I_{DM}	Pulsed Drain Current[1]	170	A
EAS	Single Pulse Avalanche Energy[2]	729	mJ
P_D@T_C=25℃	Total Power Dissipation	180	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	---	0.75	℃/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=250uA	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=28A	---	---	25	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=100V , V_{GS} =0V	---	---	25	uA
		V_{DS}=80V , V_{GS}=0V , T_C=150℃	---	---	250	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V ,V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=25V , I_D=28A	---	34	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge	I_D=28 A V_{DD}=80 V V_{GS}=10 V	---	80	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	25	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=50V I_D=28A R_G=2.5Ω V_{GS}=10V	---	15	---	ns
T_r	Rise Time		---	60	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
T_f	Fall Time		---	50	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	3500	---	pF
C_{oss}	Output Capacitance		---	640	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	57	A
I_{SM}	Pulsed Source Current		---	---	170	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=28A , T_J=25℃	---	---	1.2	V

Note :
1.Repetitive rating; pulse width limited by maximum junction temperature

2.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=0.5mH , I_{AS}=54A