CMP1010/CMB1010

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 1010 uses advanced power innovated design and silicon process technology to provide excellent RDS(ON). It can be used in a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
60V	11mΩ	100A

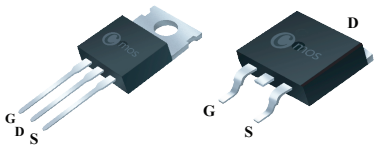
Applications

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

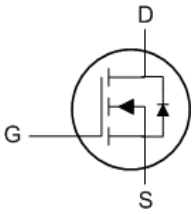
Features

- Fast switching
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

TO-220/263 Pin Configuration



TO-220 (CMP1010)　　TO-263 (CMB1010)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	100	A
I_D@T_C=100℃	Continuous Drain Current	68	A
I_{DM}	Pulsed Drain Current[1]	300	A
EAS	Single Pulse Avalanche Energy[2]	800	mJ
P_D@T_C=25℃	Total Power Dissipation	190	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	---	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.79	℃/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	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=25A	---	---	11	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}=60V , V_{GS}=0V	---	---	1	uA
		V_{DS}=60V , V_{GS}=0V@150℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	38	---	S
Q_g	Total Gate Charge	I_D=62A V_{DS}=44V V_{GS}=10V	---	90	---	nC
Q_{gs}	Gate-Source Charge		---	22	---	
Q_{gd}	Gate-Drain Charge		---	38	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=28V I_D=62A R_G=1.5Ω ,V_{GS}=10V	---	20	---	ns
T_r	Rise Time		---	100	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
T_f	Fall Time		---	30	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	6300	---	pF
C_{oss}	Output Capacitance		---	1000	---	
C_{rss}	Reverse Transfer Capacitance		---	250	---	

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]		---	---	300	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=20 A, T_J=25℃	---	---	1.3	V

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

2.The test condition is V_{DD}=30V , V_{GS}=10V , L=1 mH , I_{AS}=40A

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