

General Description

The 50N10 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.

Features

- Fast Switching
- 100% Avalanche tested
- RoHS compliant

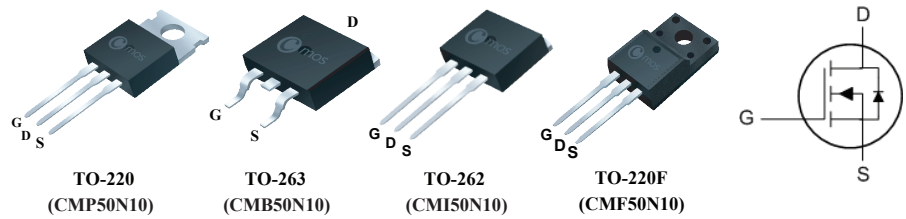
Product Summary

BVDSS	RDSON	ID
100V	17mΩ	50A

Applications

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

TO-220/263/262/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±25	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	37	A
I_{DM}	Pulsed Drain Current ¹	150	A
EAS	Single Pulse Avalanche Energy ²	200	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	100	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.5	°C/W

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=25A$	---	14	17	m Ω
		$V_{GS}=4.5V, I_D=10A$	---	18	25	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=100V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=15V, I_D=20A$	---	15	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	2.3	---	Ω
Q_g	Total Gate Charge	$I_D=20A$ $V_{DD}=80V$ $V_{GS}=0$ to 10V	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	
Q_{gd}	Gate-Drain Charge		---	8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=20V$ $I_D=50A$ $R_G=3.5\Omega$ $V_{GS}=10V$	---	10	---	ns
T_r	Rise Time		---	5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	5	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	3600	---	pF
C_{oss}	Output Capacitance		---	730	---	
C_{rss}	Reverse Transfer Capacitance		---	65	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	50	A
I_{SM}	Pulsed Source Current		---	---	150	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=25A, T_J=25^\circ\text{C}$	---	---	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 $V_{DD}=50V, V_{GS}=10V, L=0.5\text{mH}, I_{AS}=28A$

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