

General Description

The 012N06 uses advanced technology and design to provide excellent RDS(ON) .It can be used in a wide variety of applications.

Features

- Low On-Resistance
- 100% Avalanche Tested
- RoHS Compliant

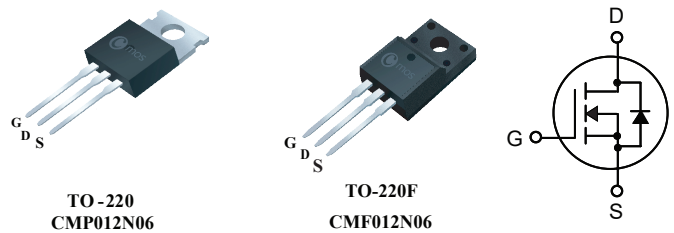
Product Summary

BVDSS	RDSON	ID
60V	12mΩ	70A

Applications

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

TO-220/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220	220F	Units
V_{DS}	Drain-Source Voltage	60		V
V_{GS}	Gate-Source Voltage	±20		V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	70	70*	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	49	49*	A
I_{DM}	Pulsed Drain Current	280	280*	A
EAS	Single Pulse Avalanche Energy ¹	112		mJ
P_D	Total Power Dissipation	125	40	W
T_{STG}	Storage Temperature Range	-55 to 150		°C
T_J	Operating Junction Temperature Range	-55 to 150		°C

Thermal Data

Symbol	Parameter	220	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	1.44	3.6	°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	$V_{GS}=0V, I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=10A$	---	10	12	m Ω
		$V_{GS}=4.5V, I_D=8A$	---	15.5	18	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
gfs	Forward Transconductance	$V_{DS}=15V, I_D=10A$	---	19	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	2.5	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	15	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=30V$	---	3	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V$	---	7	---	ns
T_r	Rise Time	$R_L=1.5\Omega$	---	4	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=3\Omega$	---	25	---	
T_f	Fall Time	$V_{GS}=10V$	---	4	---	
C_{iss}	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$	---	900	---	pF
C_{oss}	Output Capacitance		---	400	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	70	A
I_{SM}	Pulsed Source Current		---	---	280	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=20A, T_J=25^{\circ}\text{C}$	---	---	1.2	V

Notes:

1. The EAS data shows Max. rating . The test condition is $V_{DD}=50V, V_{GS}=10V, L=1\text{mH}, I_D=15A$

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