

FEATURES

- ◆ Fast switching for high efficiency
- ◆ Low noise
- ◆ $T_{rr} \sim 25\text{ns}$
- ◆ Ultra low reverse leakage current
- ◆ High voltage ultra faster diode PFC application
- ◆ High inrush current

MECHANICAL DATA

- ◆ Case : Molded plastic TO-220AC / TO-220FP
- ◆ Epoxy : UL94V-0 rate flame retardant
- ◆ Terminals : Solder able per MIL-STD-202 method 208
- ◆ 265°C Max. for 10 Seconds
- ◆ Maximum Mounting Torque 6 (5) Kg-cm(lbf-in)

Primary Characteristics

$I_{F(AV)}$	8A
V_{RRM}	600 V
$V_{F(typ)}$	1.5 V
$I_{R(typ)}$	10 μA
T_j	175 $^{\circ}\text{C}$

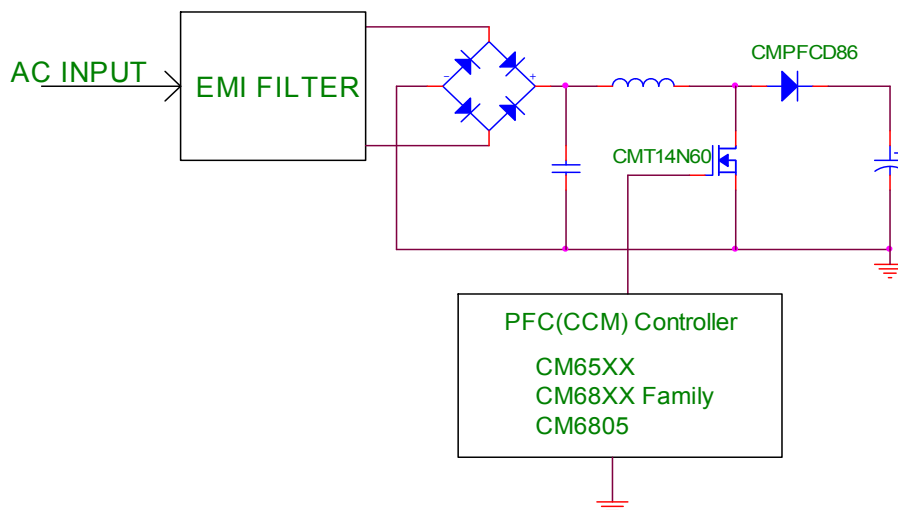
ORDERING INFORMATION

Part Number	Temperature Range	Package
CMPFCD86XN220*	-55 $^{\circ}\text{C}$ to 175 $^{\circ}\text{C}$	TO-220AC
CMPFCD86GN220*	-55 $^{\circ}\text{C}$ to 175 $^{\circ}\text{C}$	TO-220AC
CMPFCD86XN220FP*	-55 $^{\circ}\text{C}$ to 175 $^{\circ}\text{C}$	TO-220FP
CMPFCD86GN220FP*	-55 $^{\circ}\text{C}$ to 175 $^{\circ}\text{C}$	TO-220FP
CMPFCD86XN252*	-55 $^{\circ}\text{C}$ to 175 $^{\circ}\text{C}$	TO-252

*Note : G : Suffix for Pb Free Product
X : Suffix for Halogen Free

*Note : N : TO

APPLICATION CIRCUIT



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave , 60Hz , resistive or inductive load.
For capacitive load , derate current by 20%

Symbol	Characteristics		CMPFCD86		Unit
			Rating		
V _{RRM}	Recurrent Peak Reverse Voltage		600		V
V _{DC}	DC Blocking Voltage		600		V
I _{F(AV)}	Average Forward Rectified Current @T _c =140°C		8		A
I _{FSM}	Peak Forward Surge Current		90		A
	8.3ms single half sine-wave Super imposed on rated load (JEDEC Method)				
I _{FSM}	Peak Forward Surge Current		110		A
	4ms single half sine-wave				
I _{FSM}	Peak Forward Surge Current		200		A
	1ms single half sine-wave				
I _{FSM}	Peak Forward Surge Current 4ms single		90		A
	Square-wave superimposed on rated load				
I _{FSM}	Peak Forward Surge Current 1.0ms single		150		A
	Square-wave superimposed on rated load (JEDEC Method)				
I ² _t	I ² _t Value For Fusing	T _p =10ms	91	A ² s	
V _F	Instantaneous Forward Voltage (Typical) @8A		T _J =25°C	1.5	V
			T _J =125°C	1.25	
I _R	DC Reverse Current At Rated DC Blocking Voltage		T _J =25°C	10	uA
			T _J =150°C	45	
T _{rr}	Maximum Reverse Recovery Time				nS
	Test Conditions : I _F =0.5A , I _r =1.0A , I _{rr} =0.25A		25		
	Test Conditions : I _F =1A, dI _F /dt = -50A/uS, V _R =30V		35		
C _J	Typical Junction Capacitance (note1)		36	pF	
R _{θJC}	Typical Thermal Resistance (note2)		TO-220AC	2.2	°C/W
			TO-252		
			TO-220FP	4.6	
T _J	Operating Temperature Range		-55~+175		°C
T _{STG}	Storage Temperature Range		-55~+175		°C
R _{θJA}	Typical Thermal Resistance		TO-220AC	60	°C
			TO-220FP	50	
			TO-252	80	

Notes : 1. Measured at 1.0MHz and applied reverse voltage of 4.0 Volts DC.
2. Thermal Resistance junction to case.

TYPICAL CHARACTERISTICS

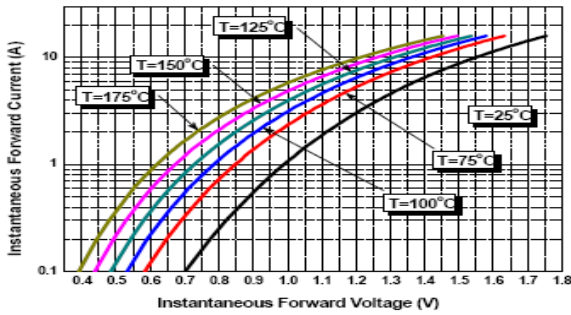


Figure 1. Typical Forward voltage V.S current

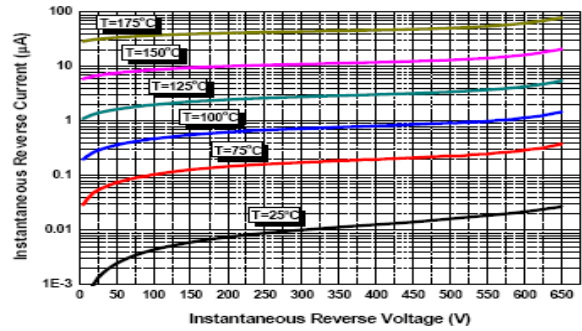


Figure 2. Typical Reverse Characteristics per Diode

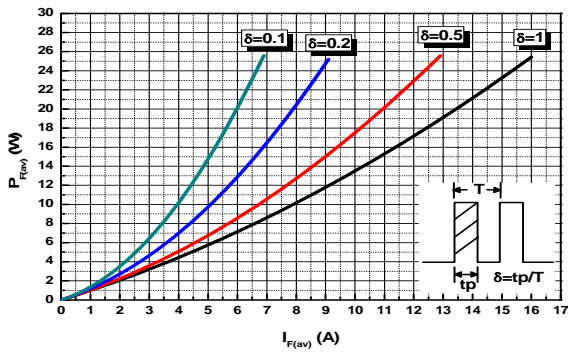


Figure 3. Average Forward Power Dissipation per Diode

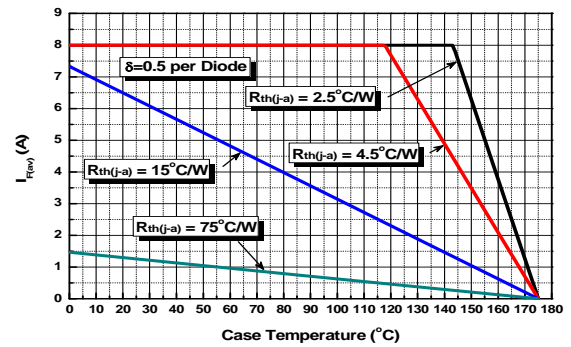


Figure 4. Current derating Curves

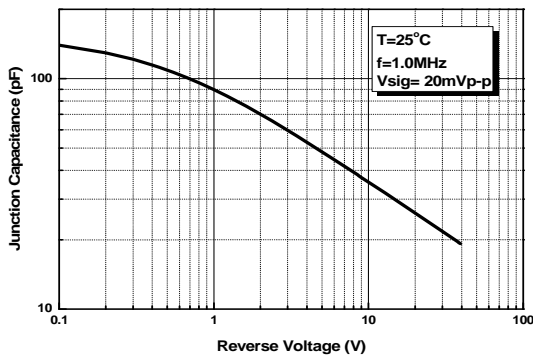


Figure 5. Typical Junction Capacitance

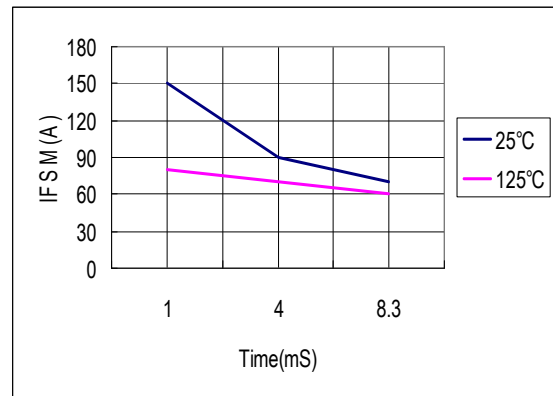


Figure 6. Peak forward surge current (square-wave)

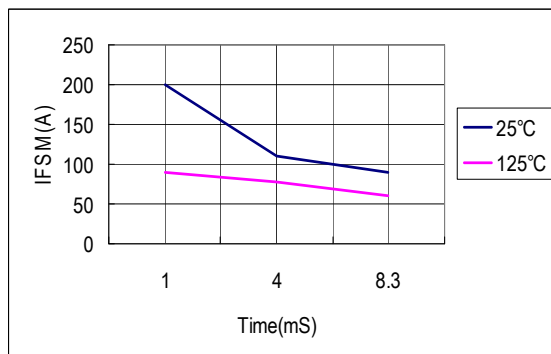
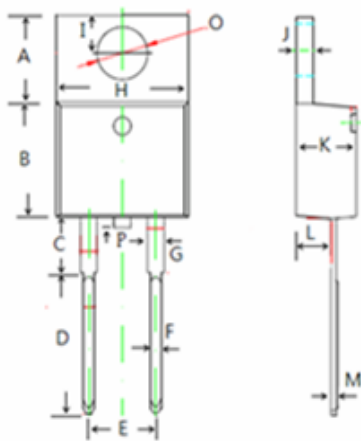


Figure 7. Peak forward surge current (single half sine wave)

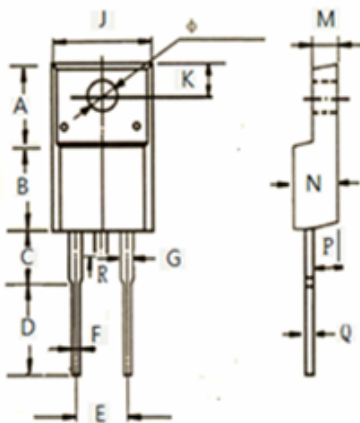
PACKAGE DIMENSION

TO-220AC



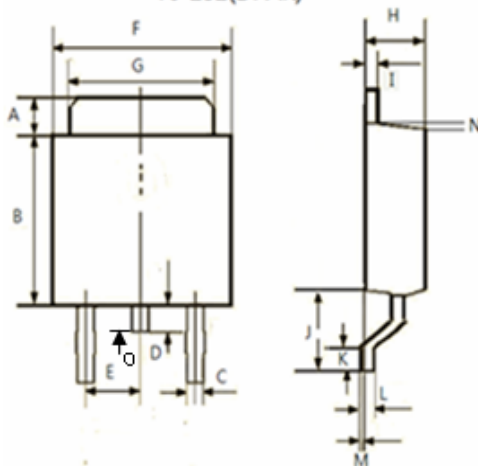
Dimension	Millimeters		Dimension	Millimeters	
	Min.	Max.		Min.	Max.
A	6.17	7.00	H	9.80	10.50
B	8.50	9.45	I	2.59	2.95
C	2.56	4.43	J	1.14	1.40
D	8.98	10.80	K	4.20	4.80
E	4.60	5.60	L	2.20	2.82
F	0.70	0.91	M	0.28	0.60
G	1.17	1.55	O	3.56	3.94
			P		1.00

TO-220FP



Dimension	Millimeters		Dimension	Millimeters	
	Min.	Max.		Min.	Max.
A	5.84	6.98	J	9.90	10.50
B	8.05	9.97	K	2.50	3.80
C	2.79	4.10	M	2.34	3.30
D	8.94	10.65	N	4.20	4.90
E	4.60	5.60	O	2.08	3.56
F	0.30	0.90	P	2.45	2.92
G	1.08	1.48	Q	0.35	0.80
			R		1.00

TO-252(DPAK)



Dimension	Millimeters		Dimension	Millimeters	
	Min.	Max.		Min.	Max.
A	0.89	1.65	H	2.19	2.40
B	5.95	6.25	I	0.43	0.58
C	0.50	0.86	J	2.43	2.90
D	0.60	1.02	K	1.25	1.78
E	2.18	2.39	L	0.43	0.60
F	6.35	6.75	M	0.00	10°
G	5.10	5.46	N	0.00	15°
			O		1.55

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