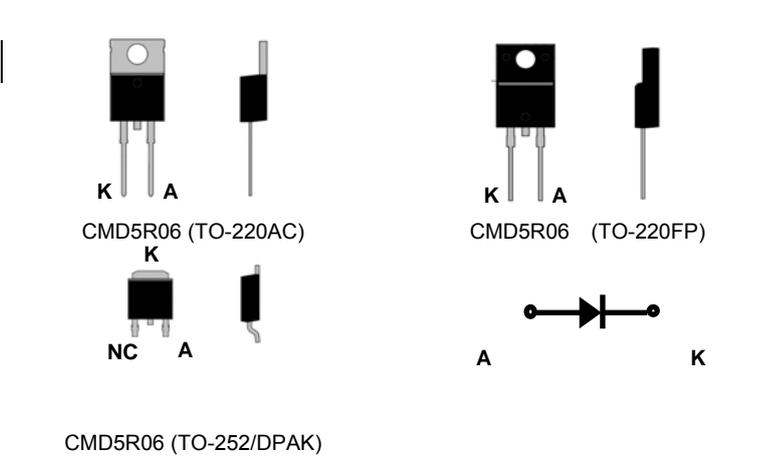


FEATURES

- ◆ Fast switching for high efficiency
- ◆ Low noise
- ◆ Trr ~ 20ns
- ◆ 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

$I_{F(AV)}$	5A
V_{RRM}	600 V
$V_{F(typ)}$	1.4 V
$I_{R(typ)}$	10 μ A
T_j	175 °C

ORDERING INFORMATION

Part Number	Temperature Range	Package
CMD5R06XN220*	-55°C to 175°C	TO-220AC
CMD5R06XN220FP*	-55°C to 175°C	TO-220FP
CMD5R06XN252*	-55°C to 175°C	TO-252

*Note : X : Suffix for Halogen Free

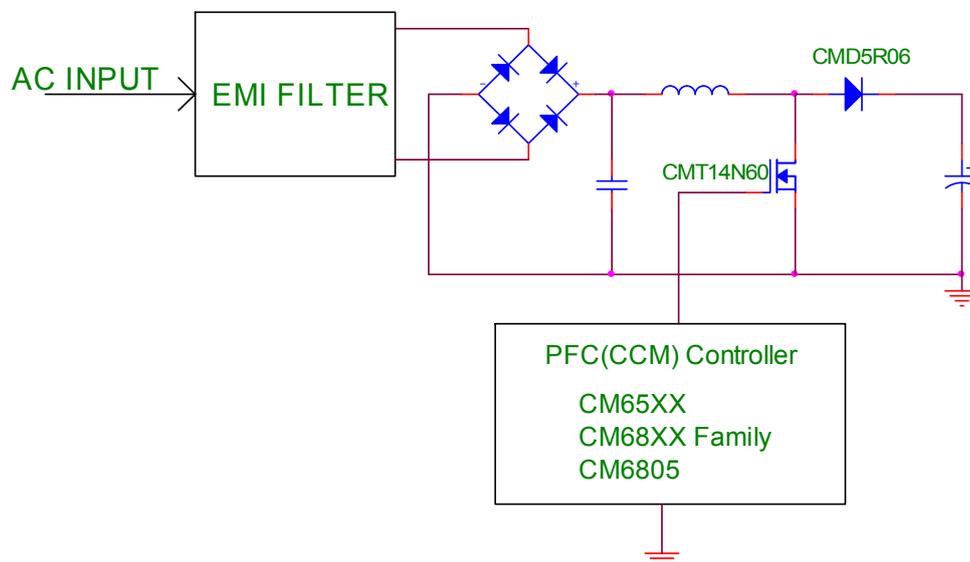
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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		CMD5R06	Unit
			Rating	
V_{RRM}	Recurrent Peak Reverse Voltage		600	V
V_{DC}	DC Blocking Voltage		600	V
$I_{F(AV)}$	Average Forward Rectified Current @Tc=140°C		5.0	A
I_{FSM}	Peak Forward Surge Current 8.3ms single half sine-wave Super imposed on rated load (JEDEC Method)		70	A
I_{FSM}	Peak Forward Surge Current 1.0ms single Square-wave superimposed on rated load (JEDEC Method)		100	A
I^2t	I^2t Value For Fusing	$T_p=10ms$	91	A ² s
V_F	Instantaneous Forward Voltage (Typical) @5A		1.4	V
I_R	DC Reverse Current @T _J =25°C		10	uA
	At Rated DC Blocking Voltage @T _J =150°C		45	
T_{rr}	Maximum Reverse Recovery Time (note1)		25	nS
C_J	Typical Junction Capacitance (note2)		36	pF
$R_{\theta JC}$	Typical Thermal Resistance (note3)		2.2	°C/W
T_J	Operating Temperature Range		-55~+175	°C
T_{STG}	Storage Temperature Range		-55~+175	°C
$R_{\theta JA}$	Typical Thermal Resistance		TO-220AC	°C
			TO-220FP	
			TO-252	

- Notes :**
- Reverse recovery test conditions $I_F=0.5A$, $I_r=1.0A$, $I_{rr}=0.25A$
 - Measured at 1.0MHz and applied reverse voltage of 4.0 Volts DC.
 - Thermal Resistance junction to case.

Application Circuit



TYPICAL CHARACTERISTICS

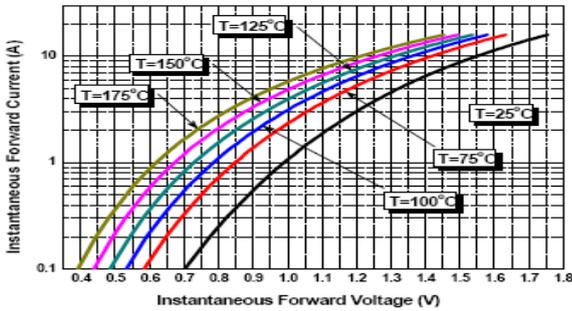


Figure 1. Typical Forward voltage V.S current

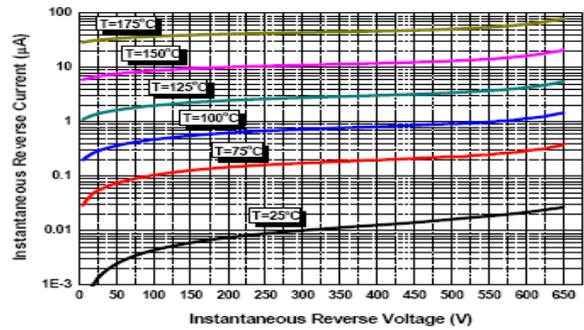


Figure 2. Typical Reverse Characteristics per Diode

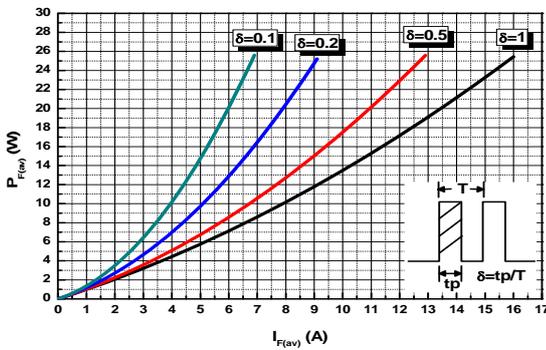


Figure 3. Average Forward Power Dissipation per Diode

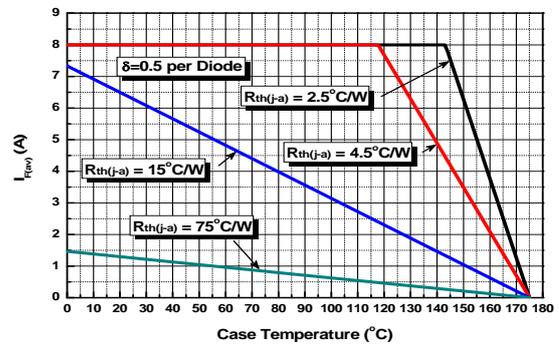


Figure 4. Current derating Curves

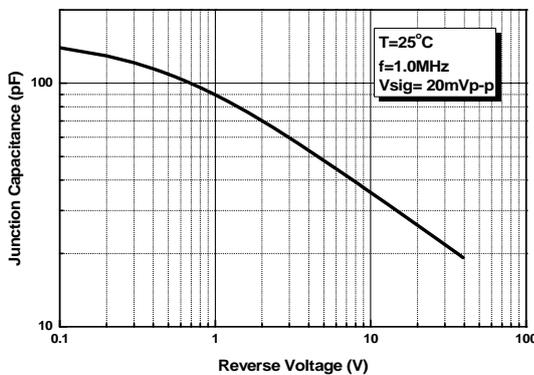


Figure 5. Typical Junction Capacitance

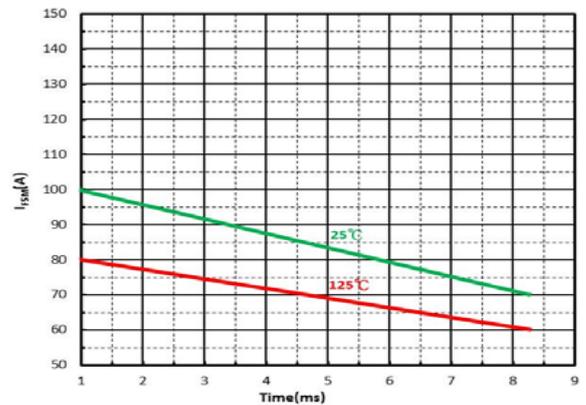


Figure 6. Peak forward surge current (square-wave)

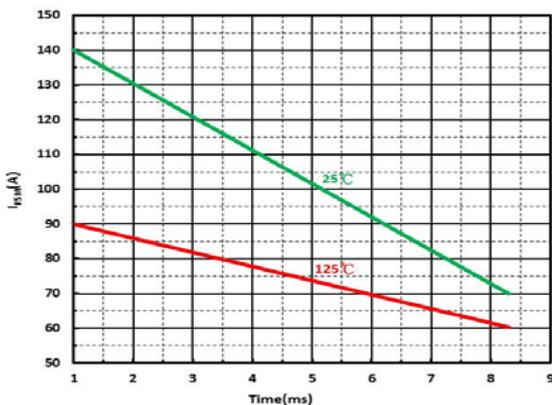
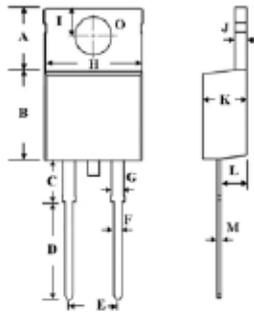
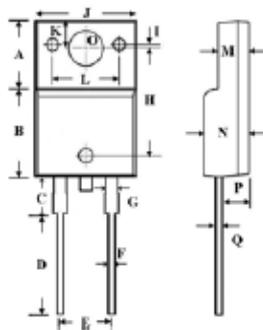


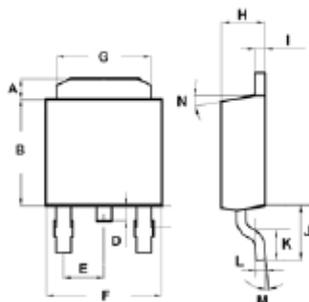
Figure 7. Peak forward surge current (single half sine wave)

PACKAGE DIMENSION
TO-220AC


Dimension	Millimeters		Dimension	Millimeters	
	Min.	Max.		Min.	Max.
A	6.173	6.515	H	10.01	10.31
B	8.763	9.017	I	2.642	2.946
C	3.98	4.423	J	1.168	1.37
D	9.72	9.87	K	4.47	4.67
E	4.98	5.18	L	2.52	2.82
F	0.711	0.91	M	0.279	0.483
G	1.17	1.37	O	3.77	3.89

TO-220FP


Dimension	Millimeters		Dimension	Millimeters	
	Min.	Max.		Min.	Max.
A	6.40	6.80	J	9.90	10.10
B	8.40	8.60	K	2.55	2.85
C	3.45	3.75	L	6.50	6.70
D	9.55	10.05	M	2.90	3.30
E	4.98	5.18	N	4.20	4.80
F	0.50	0.75	O	2.90	3.50
G	1.15	1.35	P	2.50	2.90
H	10.25	10.55	Q	0.58	0.62
I	0.30	0.40			

TO-252(DPAK)


Dimension	Millimeters		Dimension	Millimeters	
	Min.	Max.		Min.	Max.
A	0.89	1.27	H	2.19	2.38
B	5.97	6.22	I	0.46	0.58
C	1.15	1.52	J	2.43	2.83
D	0.64	1.02	K	1.39	1.65
E	2.19	2.39	L	0.44	0.60
F	6.35	6.73	M	0°	10°
G	5.21	5.46	N	0°	15°

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