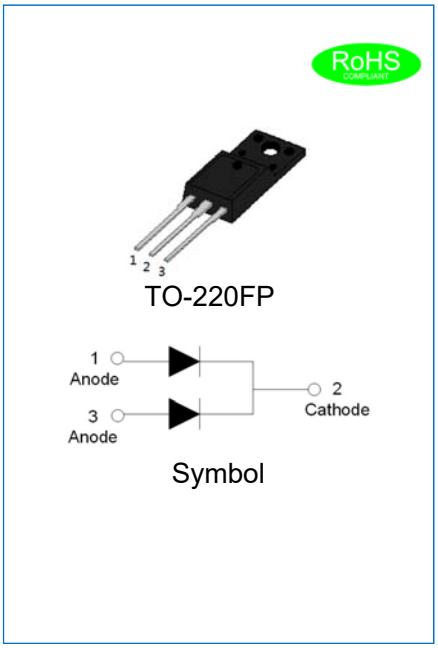
JPCR2003FPCT

EPI PLANAR HYPERFAST SOFT RECOVERY RECTIFIER

Rev.1.1

DESCRIPTION

- ✧ Plastic package has underwriters laboratory flammability classification 94V-0
- ✧ Lead free in comply with EU RoHS 2011/65/EU directives
- ✧ Low reverse leakage current
- ✧ Hyperfast recovery time
- ✧ Low recovery loss
- ✧ Epitaxial planar technology
- ✧ 5th Generation soft fast recovery characteristics
- ✧ Output rectifiers in high-frequency switched-mode power supplies



MECHANICAL DATA

- ✧ Case: TO-220FP molded plastic over passivated junction
- ✧ Terminals: Solder plated, solderable per J-STD-002
- ✧ Weight: 2.07 gram

ABSOLUTE MAXIMUM RATING (Rating at 25℃ ambient temperature unless otherwise specified.)

Parameter	Symbol	JPCR2003FPCT	Unit
Maximum repetitive peak reverse voltage (Pin1~2 or Pin3~2)	V_{RRM}	350	V
Maximum RMS voltage(Pin1~2 or Pin3~2)	V_{RMS}	245	V
Maximum DC blocking voltage(Pin1~2 or Pin3~2)	V_{DC}	350	V
Average forward current at T_C=130℃(Pin1,3~2)	$I_{F(AV)}$	20	A
Peak forward surge current: 10ms single half sine-wave superimposed on rated load((Pin1~2 or Pin3~2)	I_{FSM}	150	A
Junction temperature and storage temperature range	T_j,T_{stg}	-55 to +175	℃

SOLATION CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{isol(RMS)}$	RMS isolation voltage	50Hz≤f≤60Hz,RH≤65%,from all pins to external heatsink, sinusoidal waveform, clean and dust free	-	-	2500	V
C_{isol}	Isolation capacitance	from cathode to external heatsink	-	10	-	pF

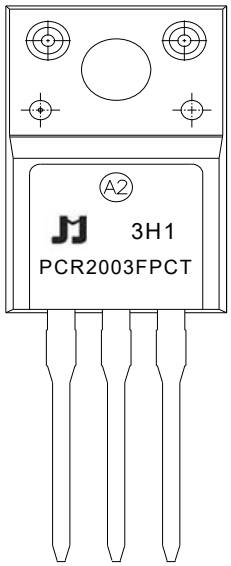
ELECTRICAL CHARACTERISTICS(Rating at 25℃ ambient temperature unless otherwise specified.)

Parameter		Symbol	Min.	Typ.	Max.	Unit
Forward voltage (Pin1~2 or Pin3~2)	I_F=10A,T_j=25℃	V_F	-	-	1.3	V
	I_F=10A,T_j=150℃		-	-	1.1	
Reverse current (Pin1~2 or Pin3~2)	V_R=350V,T_j=25℃	I_R	-	-	5	μA
	V_R=350V,T_j=150℃		-	-	100	
Reverse recovery time (Pin1~2 or Pin3~2)	I_F=1A,V_R=30V, di/dt=200A/μs,T_j=25℃	t_{rr}	-	15	25	ns
	I_F=10A,V_R=200V, di/dt=200A/μs,T_j=25℃		-	22	-	
	I_F=10A,V_R=200V, di/dt=200A/μs,T_j=125℃		-	38	-	
Reverse recovery current (Pin1~2 or Pin3~2)	I_F=10A,V_R=200V, dI_F/dt=200A/μs,T_j=25℃	I_{RRM}	-	2.8	-	A
	I_F=10A,V_R=200V, dI_F/dt=200A/μs,T_j=125℃		-	6.3	-	
Reverse recovery charge (Pin1~2 or Pin3~2)	I_F=10A,V_R=200V, dI_F/dt=200A/μs,T_j=25℃	Q_{rr}	-	32	-	nC
	I_F=10A,V_R=200V, dI_F/dt=200A/μs,T_j=125℃		-	125	-	

THERMAL RESISTANCES

Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{th(j-c)}$	Thermal resistance from junction to case(Pin1,3~2)	-	-	4	℃/W

MARKING



PCR	Planar Hyperfast Recovery Rectifier
20	$I_{F(AV)}$=20A
03	V_{RRM}:350V
FP	Package: TO-220FP
CT	Common cathode

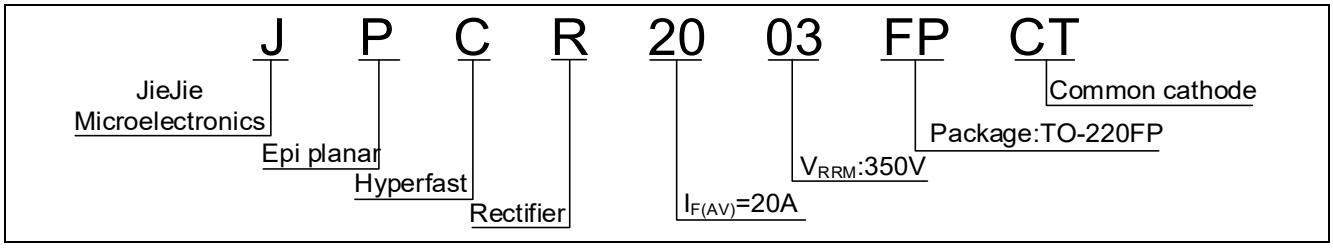
xH1: Month, 1/2/3~9/A/B/C

3**x**1:

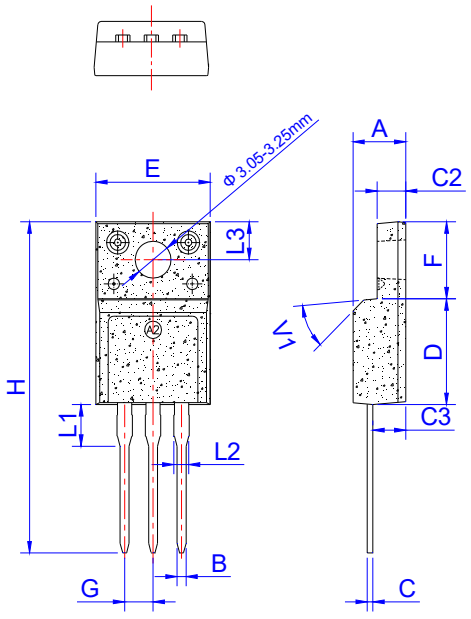
2018	2019	2020	2021	2022	2023	2024
H	I	J	K	L	M	N
2025	2026	2027	2028	2029	2030	…
O	P	Q	R	S	T	…

3H**x**: Batch number

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



TO-220FP

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

PACKAGE INFORMATION-TO-220FP

OUTLINE	UNIT WEIGHT (g/PCS) TYP	TUBE (PCS)	PER CARTON (PCS)
TUBE	2.07	50	5,000

CHARACTERITICS CURVE

FIG.1: Typical forward characteristics (Pin1~2 or Pin3~2)

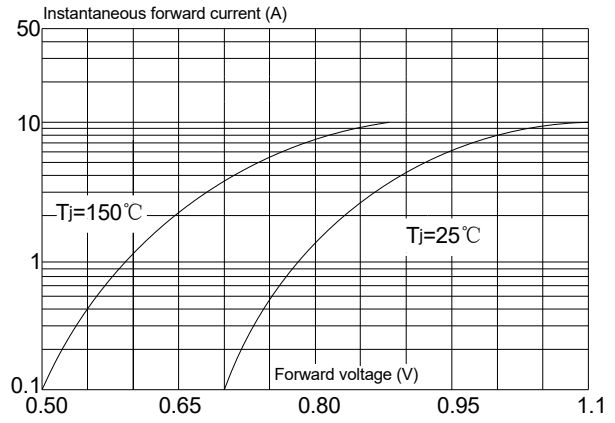


FIG.2: Typical reverse characteristics (Pin1~2 or Pin3~2)

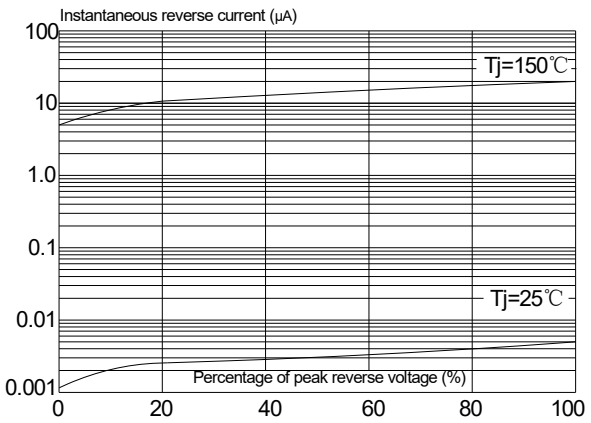


FIG.3: Maximum non-repetitive peak forward surge current (10ms single half sine-wave, Pin1~2 or Pin3~2)

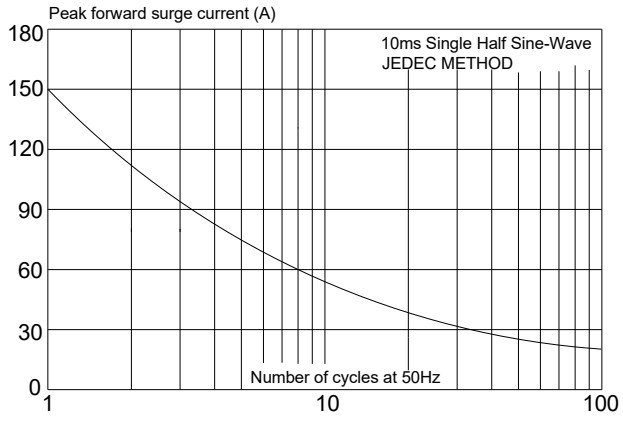


FIG.4: Forward current derating curve (Pin1,3~2)

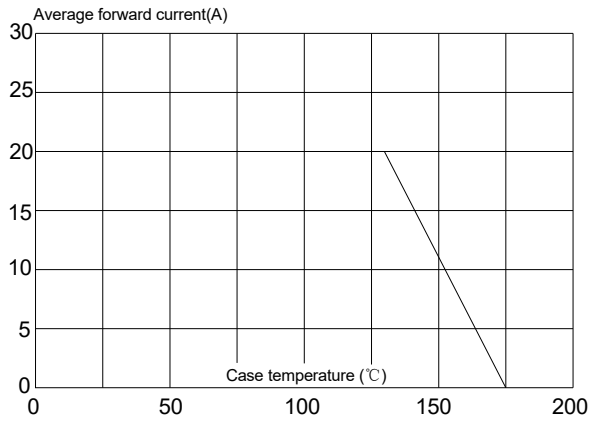


FIG.5: Reverse recovery definitions