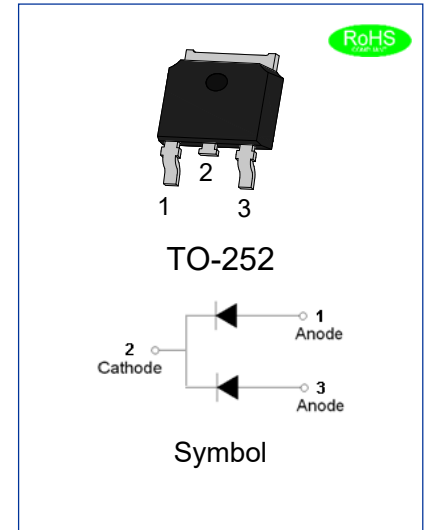


**JPCR1002KCT**
**EPI PLANAR HYPERFAST SOFT RECOVERY RECTIFIER**
**DESCRIPTION**

- Plastic package complies with UL 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directives
- Low reverse leakage current and low recovery loss
- Hyperfast recovery time
- Epitaxial planar technology
- 5th Generation soft fast recovery characteristics
- Output rectifiers in high-frequency switched-mode power supplies

**MECHANICAL DATA**

- Case: TO-252 molded plastic
- Terminals: Solder plated, solderable per J-STD-002
- Weight: 0.329 gram


**ABSOLUTE MAXIMUM RATING** (Rating at  $T_A=25^\circ\text{C}$  unless otherwise specified.)

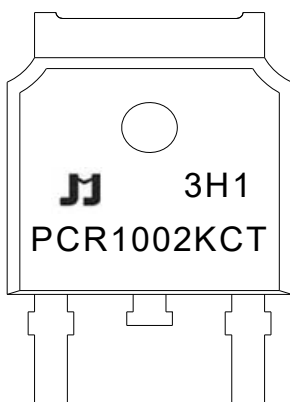
Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	V
Maximum RMS voltage	$V_{RMS}$	140	V
Maximum DC blocking voltage	$V_{DC}$	200	V
Average forward current ( $\delta=0.5$ , square-wave pulse, $T_{mb} \leq 119^\circ\text{C}$ )	$I_{F(AV)}$	10	A
Peak forward surge current: 10ms single half sine-wave superimposed on rated load(per diode)	$I_{FSM}$	50	A
Peak forward surge current: 8.3ms single half sine-wave superimposed on rated load(per diode)		55	A
Junction temperature and storage temperature range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** (Rating at  $T_A=25^\circ\text{C}$  unless otherwise specified.)

Parameter		Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F=5\text{A}, T_J=25^\circ\text{C}$	$V_F$	-	0.95	1.1	V
	$I_F=5\text{A}, T_J=150^\circ\text{C}$		-	0.8	0.895	
	$I_F=10\text{A}, T_J=25^\circ\text{C}$		-	1.1	1.25	
Reverse leakage current	$V_R=200\text{V}, T_J=25^\circ\text{C}$	$I_R$	-	0.005	5	$\mu\text{A}$
	$V_R=200\text{V}, T_J=150^\circ\text{C}$		-	5	200	
Reverse recovery time	$I_F=1\text{A}, V_R=30\text{V},$ $di/dt=100\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	$t_{rr}$	-	20	30	ns
	$I_F=0.5\text{A}, I_R=1\text{A}, I_{RR}=0.25\text{A}$		-	15	25	
Recovered charge	$I_F=2\text{A}, V_R=30\text{V},$ $di/dt=20\text{A}/\mu\text{s}$	$Q_{rr}$	-	20	30	nC
Peak reverse recovery current	$I_F=5\text{A}, V_R=30\text{V},$ $di/dt=50\text{A}/\mu\text{s}$	$I_{RM}$	-	1	1.5	A

**THERMAL RESISTANCES**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$R_{th(j-mb)}$	Thermal resistance from junction to mounting base	With heatsink compound; per diode	-	-	4.5	K/W
		With heatsink compound; Both diodes conducting	-	-	3	K/W
$R_{th(j-a)}$	Thermal resistance from junction to ambient	in free air	-	50	-	K/W

**MARKING**


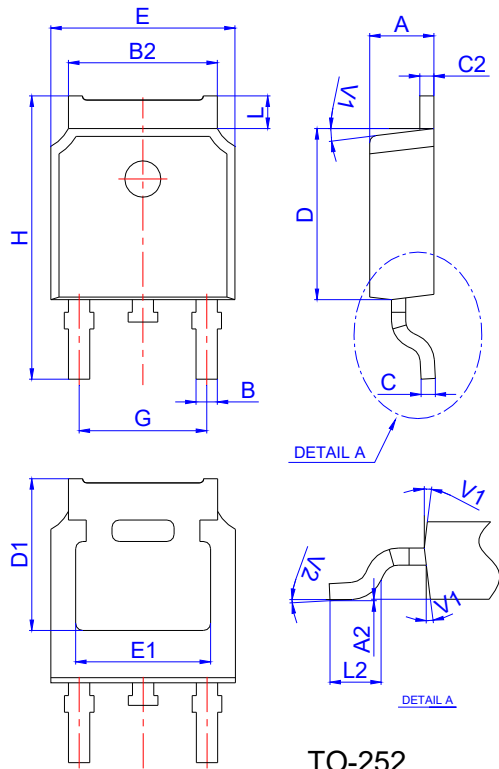
PCR	Planar Hyperfast Recovery Rectifier
10	$I_{F(AV)}=10\text{A}$
02	$V_{RRM}:200\text{V}$
K	Package:TO-252
CT	Common cathode

 $\underline{x}H1$ : Month, 1/2/3 ~ 9/A/B/C

 $3\underline{x}1$ :

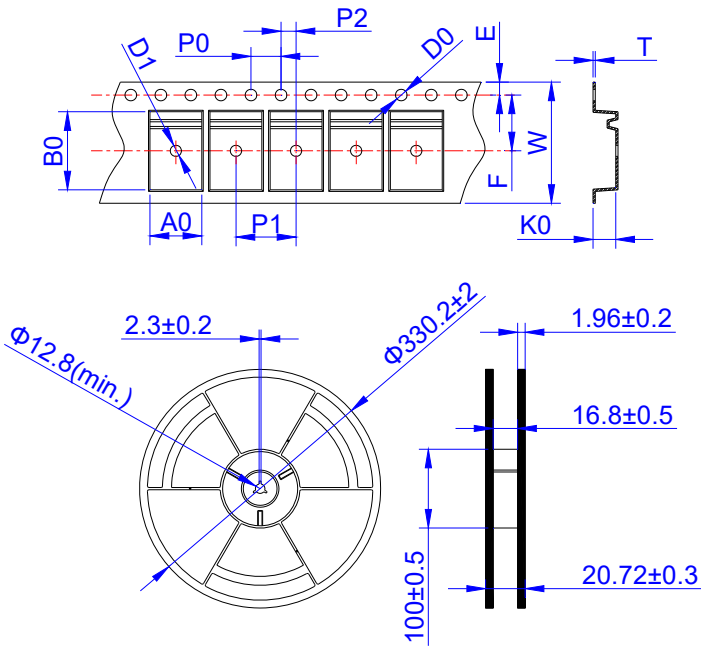
2018	2019	2020	2021	2022	2023	2024
H	I	J	K	L	M	N
2025	2026	2027	2028	2029	2030	...
O	P	Q	R	S	T	...

 $3H\underline{x}$ : Batch number

**PACKAGE MECHANICAL DATA**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

**REEL SPECIFICATION-TO-252**



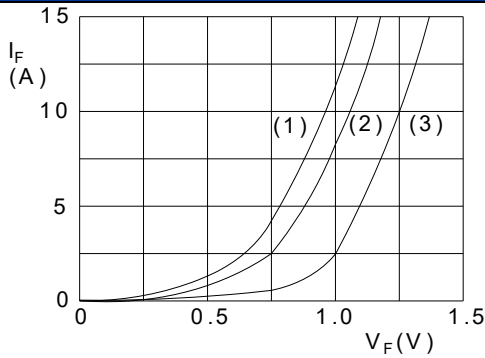
Ref.	Dimensions	
	Millimeters	Inches
W	Max:16.3	Max:0.642
E	1.75±0.10	0.069±0.004
F	7.50±0.10	0.295±0.004
D0	1.55±0.05	0.061±0.002
D1	Min:1.50	Min:0.059
P0	4.00±0.10	0.157±0.004
P1	8.00±0.10	0.315±0.004
P2	2.00±0.10	0.079±0.004
A0	6.90±0.10	0.272±0.004
B0	10.50±0.10	0.413±0.004
K0	2.70±0.10	0.106±0.004
T	0.30±0.05	0.012±0.002

**PACKAGE INFORMATION-TO-252**

OUTLINE	UNIT WEIGHT (g/PCS) TYP	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TAPING	0.329	2,500	25,000	13inch

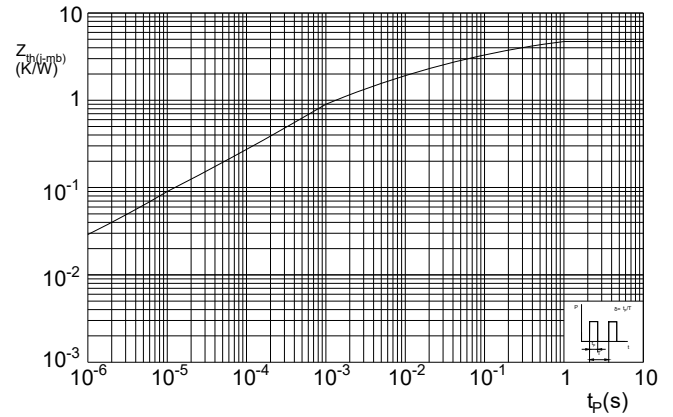
**CHARACTERISTICS CURVE**

**FIG. 1: Forward current as a function of forward voltage**

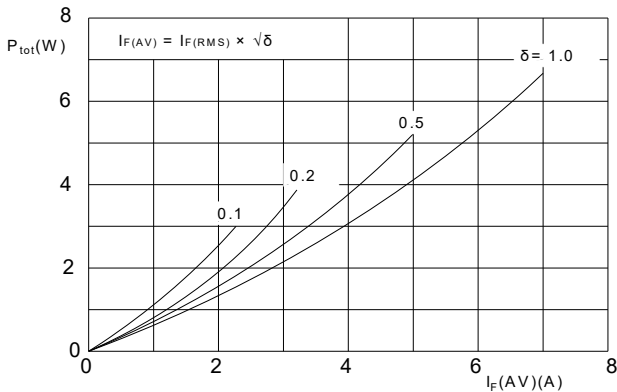


- (1)  $T_j=150^\circ\text{C}$ ; typical values
- (2)  $T_j=150^\circ\text{C}$ ; maximum values
- (3)  $T_j=25^\circ\text{C}$ ; maximum values

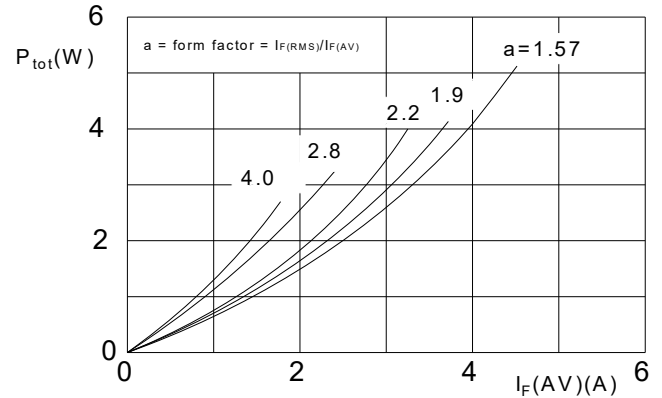
**FIG. 2: Transient thermal impedance from junction to mounting base as a function of pulse width**



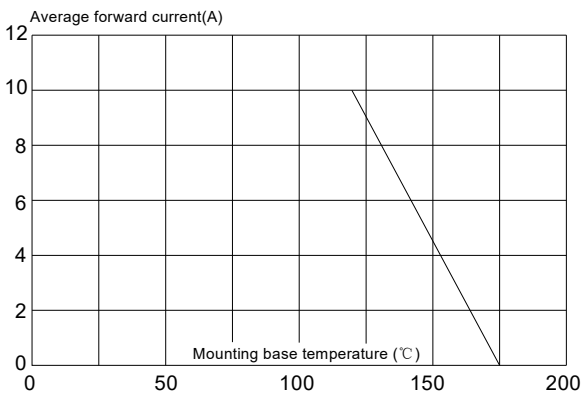
**FIG. 3: Forward power dissipation as a function of average forward current; square waveform; maximum values**



**FIG. 4: Forward power dissipation as a function of average forward current; sinusoidal waveform; maximum values**



**FIG. 5: Forward current derating curve**



**FIG. 6: Reverse recovery definitions**

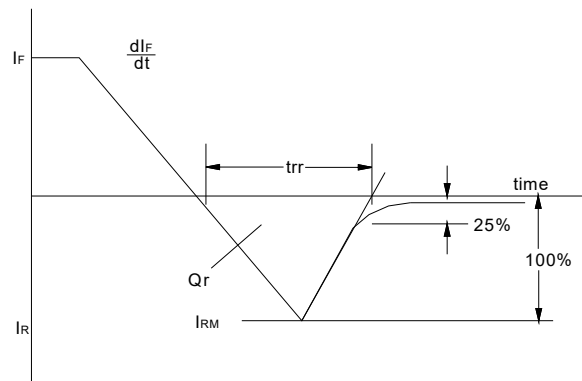
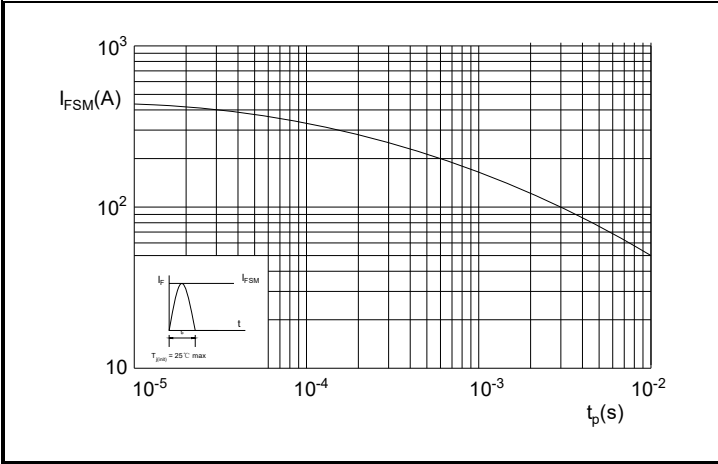


FIG. 7: Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values





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