Rectifier diodes schottky barrier

PBYR2045CTX series

GENERAL DESCRIPTION

Dual low leakage, platinum barrier, schottky rectifier diodes in a full pack plastic envelope, featuring low forward voltage drop, absence of stored charge. and guaranteed reverse surge capability. The devices are intended for use in switched mode power supplies and high frequency circuits in general where low conduction and zero switching losses are important.

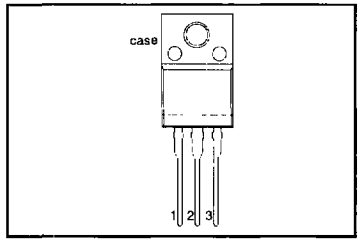
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
	PBYR20-	35CTX	40CTX	45CTX	
V_{RRM}	Repetitive peak reverse voltage	35	40	45	V
V_F	Forward voltage	0.57	0.57	0.57	V
$I_{O(AV)}$	Average output current (both diodes conducting)	20	20	20	A

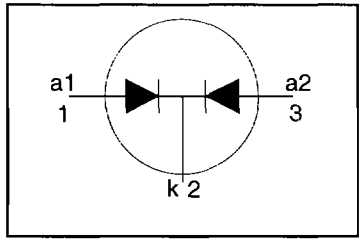
PINNING - SOT186A

PIN	DESCRIPTION
1	anode 1 (a)
2	cathode (k)
3	anode 2 (a)
case	isolated

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-35	-40	-45	
V_{RRM}	Repetitive peak reverse voltage		-	35	40	45	V
V_{RWM}	Crest working reverse voltage		-	35	40	45	V
V_R	Continuous reverse voltage	$T_{hs} \leq 114$ °C	-	35	40	45	V
$I_{O(AV)}$	Average output current (both diodes conducting)	square wave; $\delta = 0.5$; $T_{hs} \leq 81$ °C	-		20		A
$I_{O(RMS)}$	RMS output current (both diodes conducting)		-		20		A
I_{FRM}	Repetitive peak forward current per diode	$t = 25$ µs; $\delta = 0.5$; $T_{hs} \leq 81$ °C	-		20		A
I_{FSM}	Non-repetitive peak forward current, per diode	$t = 10$ ms	-		100		A
		$t = 8.3$ ms sinusoidal $T_j = 125$ °C prior to surge; with reapplied $V_{RRM(max)}$	-		110		A
I^2t	I^2t for fusing	$t = 10$ ms	-		50		A^2s
I_{RRM}	Repetitive peak reverse current per diode.	$t_p = 2$ µs; $\delta = 0.001$	-		1		A
I_{RSM}	Non-repetitive peak reverse current per diode.	$t_p = 100$ µs	-		1		A
T_{stg}	Storage temperature		-65		175		°C
T_j	Operating junction temperature		-		150		°C

ISOLATION LIMITING VALUE & CHARACTERISTIC

T_{hs} = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	R.M.S. isolation voltage from all three terminals to external heatsink	f = 50-60 Hz; sinusoidal waveform; R.H. ≤ 65% ; clean and dustfree	-		2500	V
C_{isol}	Capacitance from T2 to external heatsink	f = 1 MHz	-	10	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j\text{-}hs}$	Thermal resistance junction to heatsink	per diode	-	-	5.9	K/W
		both diodes (with heatsink compound)	-	-	5.0	K/W
$R_{th\ j\text{-}a}$	Thermal resistance junction to ambient	in free air.	-	55	-	K/W

STATIC CHARACTERISTICS

T_j = 25 °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage (per diode)	I_F = 10 A; T_j = 125°C	-	0.51	0.57	V
		I_F = 20 A; T_j = 125°C	-	0.67	0.72	V
		I_F = 20 A	-	0.79	0.84	V
I_R	Reverse current (per diode)	$V_R = V_{RRM}$	-	50	100	µA
		$V_R = V_{RRM}$; T_j = 125 °C	-	13	26	mA
C_d	Junction capacitance (per diode)	f = 1MHz; V_R = 5V; T_j = 25 °C to 125 °C	-	400	-	pF

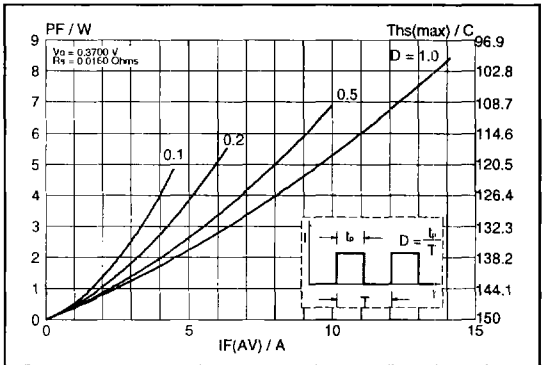


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

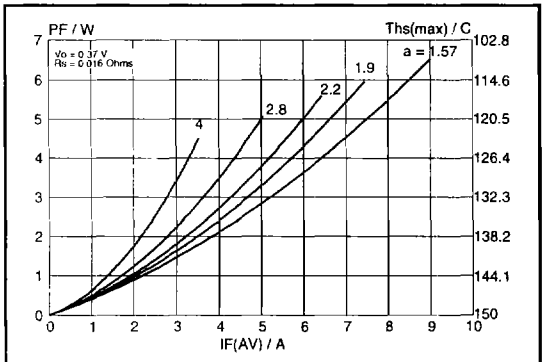


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

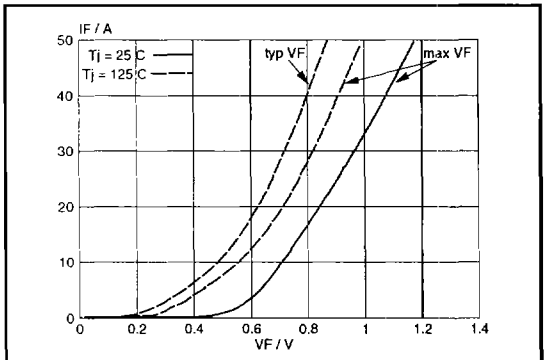


Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

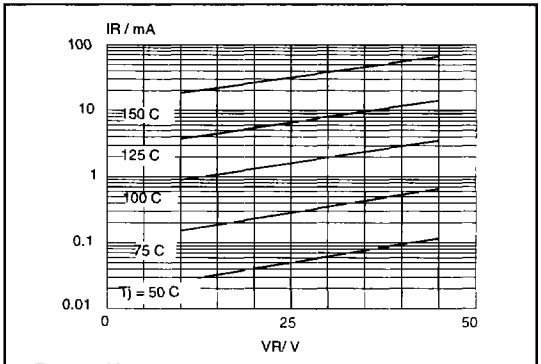


Fig.4. Typical reverse leakage current per diode; $I_R = f(V_R)$; parameter T_j

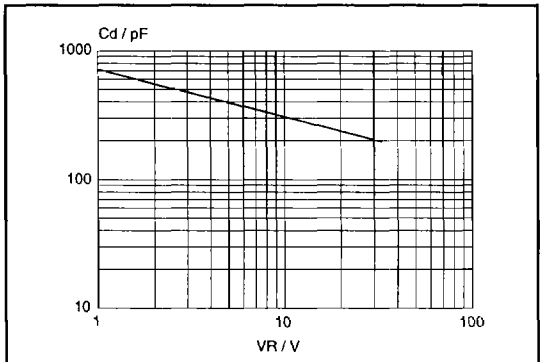


Fig.5. Typical junction capacitance per diode; $C_d = f(V_R)$; f = 1 MHz; T_j = 25˚C to 125 ˚C.

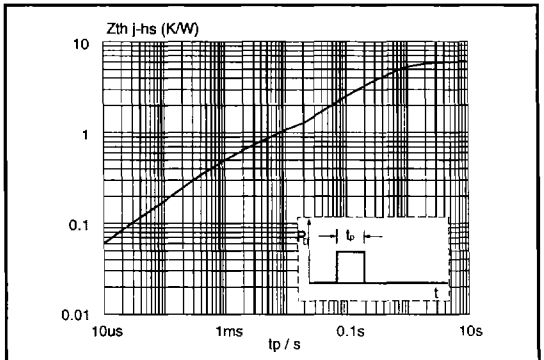


Fig.6. Transient thermal impedance per diode; $Z_{th\ j\text{-}hs} = f(t_p)$.