Rectifier diodes schottky barrier

PBYR2545CTF series

GENERAL DESCRIPTION

Dual, low leakage, platinum barrier, schottky barrier rectifier diodes in a full pack, plastic envelope featuring low forward voltage drop and absence of stored charge. These devices can withstand reverse voltage transients and have 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.

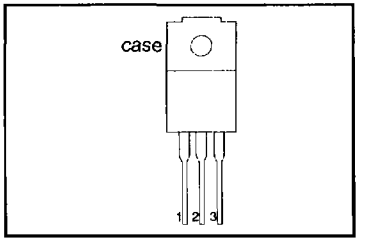
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
	PBYR25-	35CTF	40CTF	45CTF	
V_{RRM}	Repetitive peak reverse voltage	35	40	45	V
V_F	Forward voltage	0.65	0.65	0.65	V
$I_{O(AV)}$	Output current (both diodes conducting)	20	20	20	A

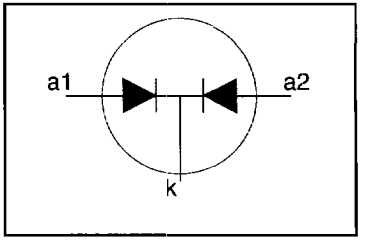
PINNING - SOT186

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

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	$T_{hs} \leq 111$ °C	-	35	40	45	V
$I_{O(AV)}$	Output current (both diodes conducting)	square wave; $\delta = 0.5$; $T_{hs} \leq 104$ °C	-		20		A
$I_{O(RMS)}$	RMS forward current		-		20		A
I_{FRM}	Repetitive peak forward current per diode	$t = 25$ µs; $\delta = 0.5$; $T_{hs} \leq 104$ °C	-		20		A
I_{FSM}	Non-repetitive peak forward current per diode	$t = 10$ ms	-		135		A
		$t = 8.3$ ms sinusoidal; $T_j = 125$ °C prior to surge; with reapplied $V_{RWM(max)}$	-		150		A
I^2t	I^2t for fusing	$t = 10$ ms	-		91		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

T_{hs} = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Repetitive peak voltage from all three terminals to external heatsink	R.H. ≤ 65% ; clean and dustfree	-	-	1500	V
C_{isol}	Capacitance from T2 to external heatsink	f = 1 MHz	-	12	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j\text{-}hs}$	Thermal resistance junction to heatsink	per diode both diodes (with heatsink compound)	- -	- -	4.8 4.0	K/W 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 = 20 A; T_j = 125°C I_F = 20 A	- -	0.58 0.63	0.65 0.68	V V
I_R	Reverse current (per diode)	$V_R = V_{RWM}$ $V_R = V_{RWM}$; T_j = 125 °C	- -	100 12	200 40	µA mA
C_d	Junction capacitance (per diode)	f = 1MHz; V_R = 5V; T_j = 25 °C to 125 °C	-	800	-	pF

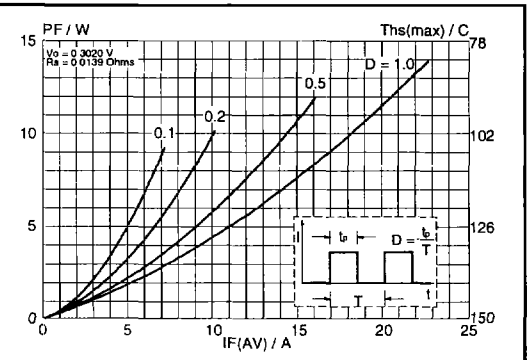


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

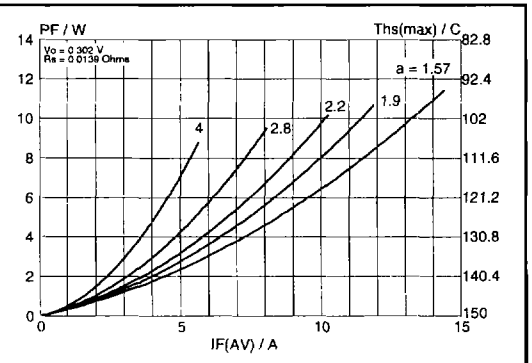


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

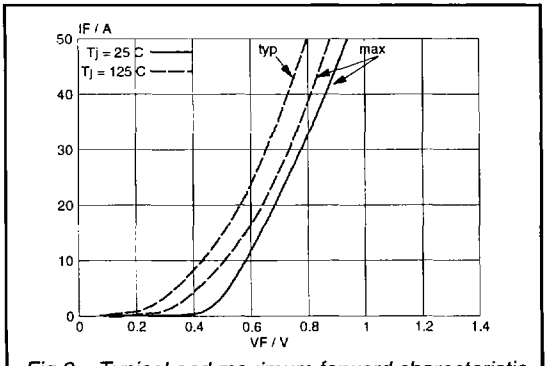


Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

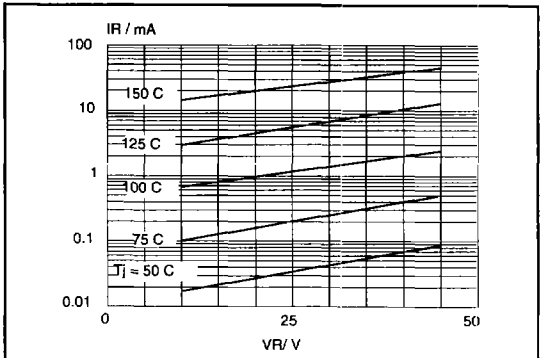


Fig.4. Typical reverse leakage current per diode; $I_R = f(V_R)$; parameter T_j

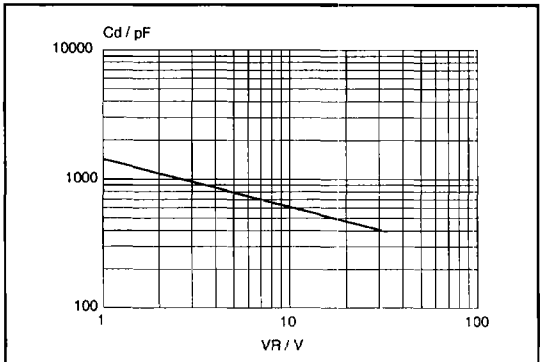


Fig.5. Typical junction capacitance per diode; $C_d = f(V_R)$; f = 1 MHz; T_j = 25°C to 125 °C.

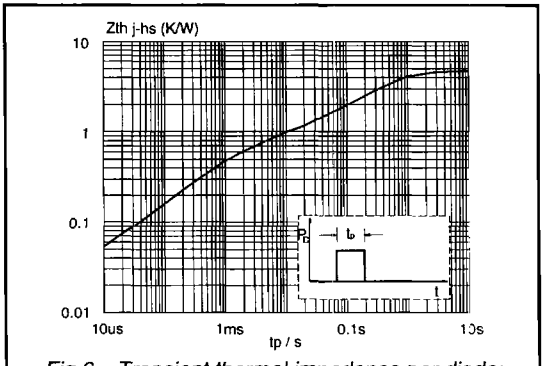


Fig.6. Transient thermal impedance per diode; $Z_{th\ j\text{-}hs} = f(t_p)$.