Rectifier diodes schottky barrier

PBYR1045X series

GENERAL DESCRIPTION

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.

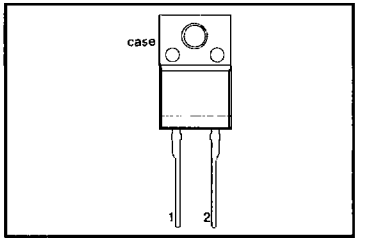
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
	PBYR10-	35X	40X	45X	
V_{RRM}	Repetitive peak reverse voltage	35	40	45	V
V_F	Forward voltage	0.59	0.59	0.59	V
$I_{F(AV)}$	Average forward current	10	10	10	A

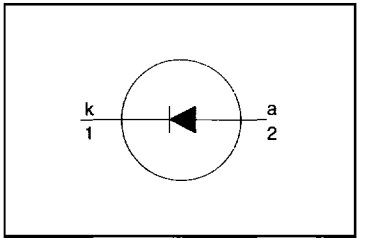
PINNING - SOD113

PIN	DESCRIPTION
1	cathode
2	anode
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	$T_{hs} \leq 125$ °C	-	35	40	45	V
$I_{F(AV)}$	Average forward current	square wave; $\delta = 0.5$; $T_{hs} \leq 112$ °C	-		10		A
$I_{F(RMS)}$	RMS output current		-		14		A
I_{FRM}	Repetitive peak forward current	t = 25 µs; $\delta = 0.5$; $T_{hs} \leq 112$ °C	-		20		A
I_{FSM}	Non-repetitive peak forward current	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	$t_p = 2$ µs; $\delta = 0.001$	-		1		A
I_{RSM}	Non-repetitive peak reverse current	$t_p = 100$ 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	with heatsink compound	-	-	5.5	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	I_F = 10 A; T_j = 125°C	-	0.50	0.59	V
		I_F = 20 A; T_j = 125°C	-	0.62	0.75	V
		I_F = 20 A	-	0.78	0.87	V
I_R	Reverse current	$V_R = V_{RRM}$	-	50	100	µA
		$V_R = V_{RRM}$; T_j = 125 °C	-	13	26	mA
C_d	Junction capacitance	f = 1MHz; V_R = 5V; T_j = 25 °C to 125 °C	-	400	-	pF

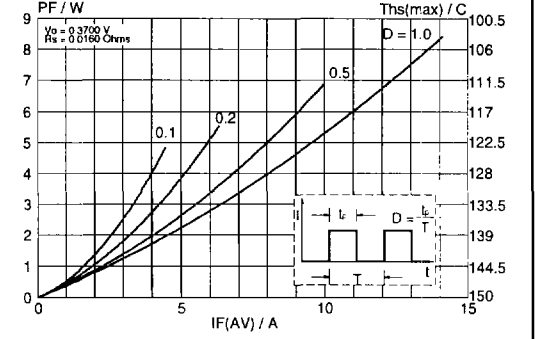


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

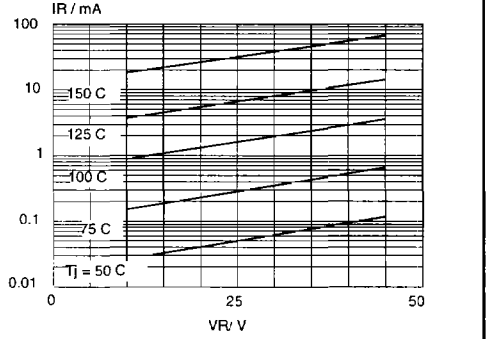


Fig.4. Typical reverse leakage current; $I_R = f(V_R)$; parameter T_j

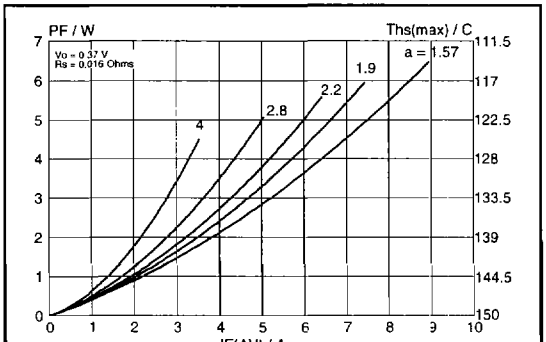


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

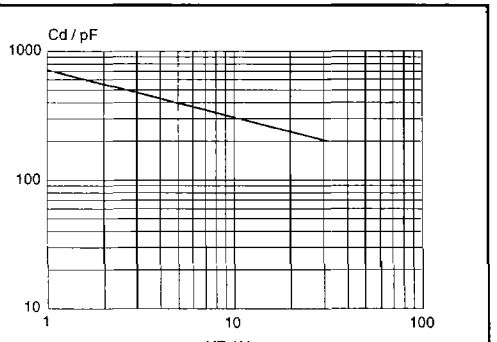


Fig.5. Typical junction capacitance; $C_d = f(V_R)$; f = 1 MHz; T_j = 25˚C to 125 ˚C.

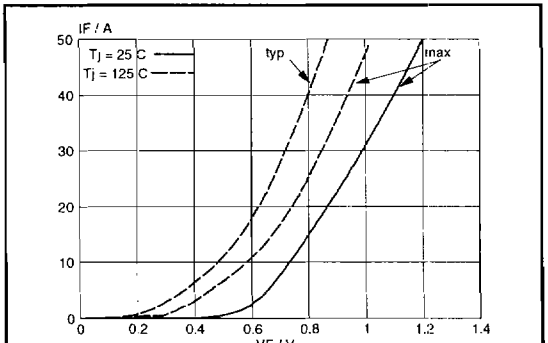


Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

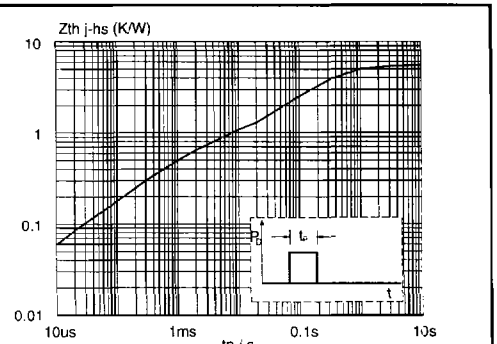


Fig.6. Transient thermal impedance; $Z_{th\ j\text{-}hs} = f(t_p)$.