■ 特性 Feature

- 安裝在散熱器，於25℃時，額定功率達20瓦
  20 Watts at 25℃ case temperature
  heat sink mounted
- TO-220模壓塑封包裝
  TO-220 style power package
- 保護性高的模壓塑膠封外盒，且易於安裝
  Molded case for protection and easy to mount
- 高絕緣度
  Electrically isolated case
- 無感設計
  Non-Inductive design

■ 訂貨方式 HOW TO ORDER

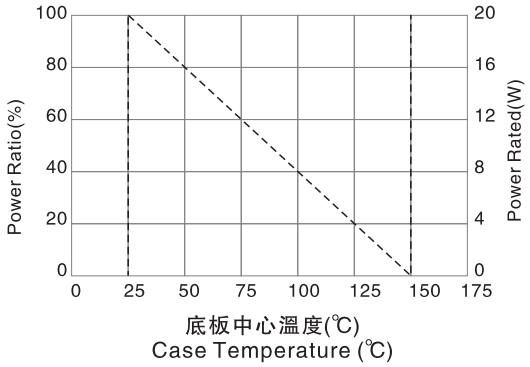
TR	20	B	J	12Ω	TC50
a	b	c	d	e	f

a: 名稱 Product code
b: 額定功率 Rated Power
c: 包裝方式 Type
d: 容許誤差 Tolerance
e: 電阻值 Rresistance value
f: 溫度係數 TCR(PPM/℃)

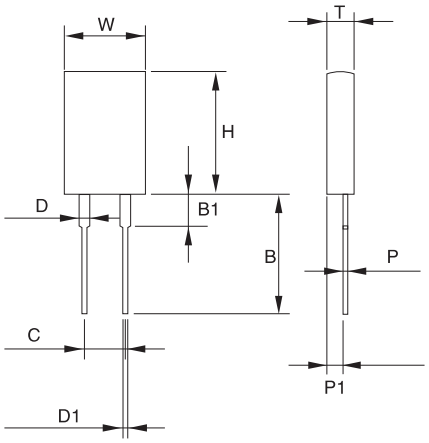
■ 應用範圍 Applications

- 高速切換型電源應器
  High Speed Switching Power Supplies
- 脈衝發生器的負載電阻
  Snubbers Circuits
- 電壓整流器
  Load Resistor for Pulse Generators
- 緩衝電路器
  Voltage Regulation
- VHF放大器
  VHF Amplifiers

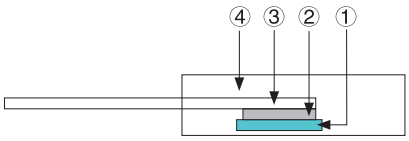
■降功率曲線 Derating Curve



■ 尺寸 Dimensions



■ 結構圖 Construction



①	氧化鋁基板	Alumina Substrate
②	電阻層	Resistor Layer
③	引脚	Lead
④	模壓封裝	Molding

(mm)

型號 Type	W ± 0.5	H ± 0.5	B ± 0.5	B1 ± 0.5	C ± 0.5	D ± 0.5	D1 ± 0.5	T ± 0.5	P ± 0.5	P1 ± 0.5
TR20	10.41	16.26	12.7	3.3	5.08	1.27	0.75	3.18	0.5	1.78

■ 性能 Specification

Resistance Range	TCR(PPM/℃)			
	±0.5%	±1%	±5%	±10%
>1Ω-3Ω		±300	±300	±300
>3Ω-10Ω		±100 ±200	±100 ±200	±100 ±200
>10Ω-10KΩ	±50 ±100 ±200	±50 ±100 ±200	±50 ±100 ±200	±50 ±100 ±200

- 最大工作電壓：350V; Operating Voltage: 350V max.
- 壓電強度：1,800VAC; Dielectric Strength: 1800VAC
- 絕緣阻抗：10GΩ min。 Insulation Resistance: 10GΩmin.
- 工作溫度：-65℃ to +150℃; Working Temperature Range: -65℃ to +150℃

■ 性能和測試要求 Specification And Test Methods

測試項目 Test Item	基本要求 Requirement	測試方法 Test Method
溫度係數 (T.C.R.) Temperature Coefficient of Resistance (T.C.R.)	依各規格要求. As Spec.	依據電阻於室溫25℃及高溫+105℃之測量值變化量計算 Referenced to 25℃, ΔR taken at +105℃
短時間過負荷 Short Time Overload	△R±0.3%	2倍額定功率，但不超過最大耐壓的1.5倍，連續5秒鐘 2 times rated power with applied voltage not to exceed 1.5 times Maximum continuous operating voltage for 5 seconds
負載壽命 Load Life	△R±1.0%	額定功率下2,000小時 2,000 hours at rated power
耐濕測試 Damp Heat with Load	△R±0.5%	40±2℃,90~95%溼度下,在最大工作電壓下維持1,000小時 (1.5小時”開”,0.5小時”關”) 40±2℃, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs “ON” and 0.5 hrs “OFF”
焊接附著性 Solderability	90%以上覆蓋新錫 90% min. coverage	260±5℃持續3秒 260±5℃ for 3 seconds
熱衝擊測試 Thermal Shock	△R±0.3%	-65℃~150℃, 100次循環 -65℃~150℃, 100 cycles
引線強度 Terminal Strength	△R±0.2%	(拉力測試)2.4牛頓 (Pull Test) 2.4N
高頻震動 Vibration, High Frequency	△R±0.2%	20公克震動 20g peak

- 引線材料：鍍錫銅線 Lead Material: Tinned Copper
- 在不使用散熱片，25℃常溫下，TR20額定功率是3W
  Without a Heat Sink When in Free Air at 25° C, the TR20 is Rated for 3W
- 功率的使用極限，取決於塑裝盒的表面溫度
  The Case Temperature is to be used for the Definition of the Applied Power Limit
- 塑裝盒的表面溫度測量，需用於所使用的散熱器上所安裝本器件的中央位置
  The Case Temperature Measurement must be made with a Thermocouple Contacting the Center of the Component mounted on the Designed Heat Sink.
- 散熱膏須正確應用 Thermal Grease should be Applied Properly

RoHs Compliant