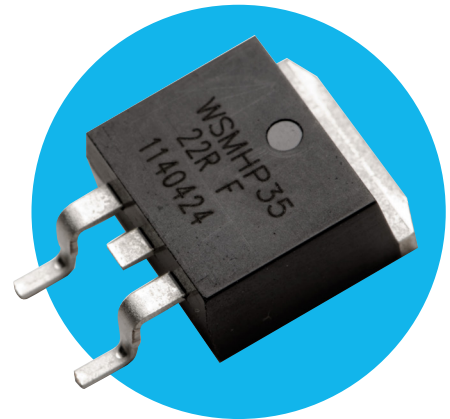


Surface Mount High Power Resistors

WSMHP Series

- TO-263 surface mount package
- Very low thermal resistance
- Non-inductive, 20, 25 and 35 watt high power resistors
- Low profile package for high density PCB installation
- Suitable for board mounting with either solder or clip
- AEC-Q200 qualified

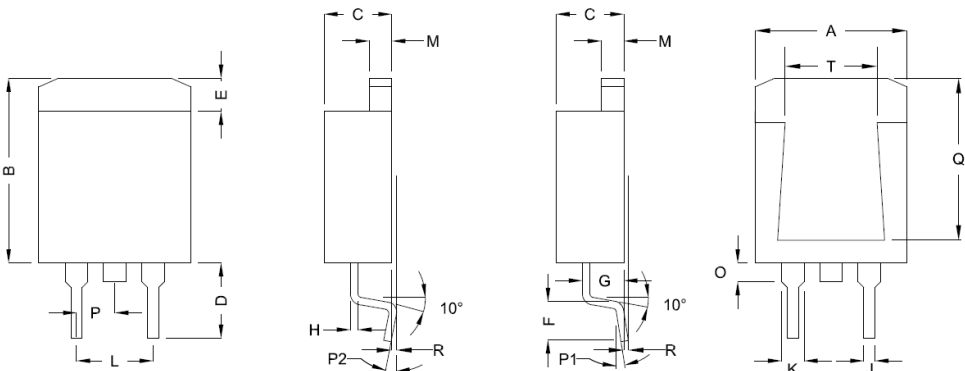


 All parts are Pb-free and comply with EU Directive 2011/65/EU (RoHS2)

Electrical Data

		WSMHP20	WSMHP25	WSMHP35	Conditions
Power rating	watts	20	25	35	Heatsink with 25°C flange temperature
Power rating	watts		2.5		Without heatsink
Thermal resistance	°C/W		3.3		Resistor hotspot to flange
Limiting element voltage	volts		500		dc or ac rms
Resistance range	ohms		0R5 – 100K		
Dielectric strength	volts		2000		dc for 60s
Working temperature range	°C		-55 to 175		
Insulation resistance	ohms		>10G		Between terminals and tab
Tolerances	%		≤1R0: ±5 >1R0: ±1, ±5		
TCR	ppm/°C		≤3R0: ±300 >3R0-10R: ±100 >10R: ±50		25 to 105°C
Standard values			E24 preferred		

Physical Data

Dimensions (mm) & Weight (g)					
A	10.1 ±0.3				
B	10.1 ±0.3				
C	4.6 ±0.2				
D	5.0 ±1				
E	1.27 ±0.3				
F	2.54 ±0.5				
G	3.2 ±0.2				
H	0.43 ±0.07				
J	0.88 ±0.12				
K	1.32 ±0.15				
L	5.08 ±0.1				
M	1.35 ±0.1				
O	1.5 ±0.5				
P	2.54 ±0.1				
P1	0 to 3°				
P2	0 to 3°				
Q	6.9 ±0.3				
R	0 to 0.254				
T	6.0 ±1				
Wt	1.5 nom.				

General Note

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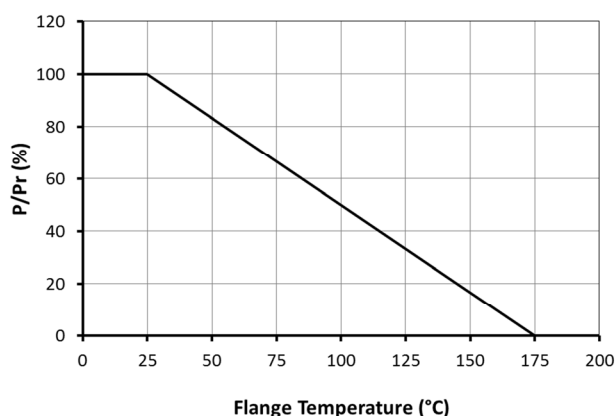
BI Technologies IRC Welwyn

<http://www.ttelectronics.com/resistors>

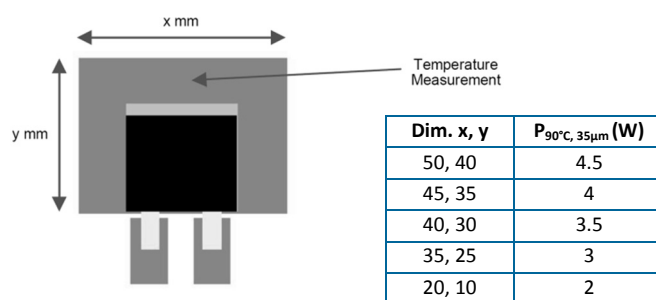
Performance Data

Test		Performance
Load at Rated Power: 2000hrs at rated power	$\pm\Delta R\%$	1
Short Term Overload: 2 x rated power with applied voltage not to exceed 1.5 x maximum continuous operating voltage for 5 seconds	$\pm\Delta R\%$	0.3
High Temperature Exposure: MIL-STD-202 method 108, at 175°C for 1000hrs, no load	$\pm\Delta R\%$	0.25
Temperature Cycling: JESD22 method JA-104, -55°C/175°C, 1000cycles	$\pm\Delta R\%$	0.3
Biased Humidity: MIL-STD-202 method 103, 1000hrs 85°C/85% RH, 10% of operating power	$\pm\Delta R\%$	0.5
Mechanical Shock: MIL-STD-202 method 213	$\pm\Delta R\%$	0.5
Vibration: MIL-STD-202 method 204, peak acceleration 5g for 20min, 12 cycles each of 3 orientations, 10-2000Hz	$\pm\Delta R\%$	0.2
Resistance to Soldering Heat: JIS-C-5201-1 4.18 IEC 60115-1 4.18, 260 $\pm$ 5°C for 10 seconds	$\pm\Delta R\%$	0.5
HBM ESD: AEC-Q200-002, human body 25kV (AD)	$\pm\Delta R\%$	1
Solderability: J-STD-002, 240 $\pm$ 5°C for 3 seconds		$\geq 90\%$ coverage
Moisture Resistance: MIL-STD-202 method 106, 10 cycles, 24hours	$\pm\Delta R\%$	0.5
Bending Strength: AEC-Q200-005, Bending 2mm for 60 seconds	$\pm\Delta R\%$	0.25
Terminal Strength: AEC-Q200-006, 1.8Kg for 60 seconds	$\pm\Delta R\%$	0.2

Temperature Derating



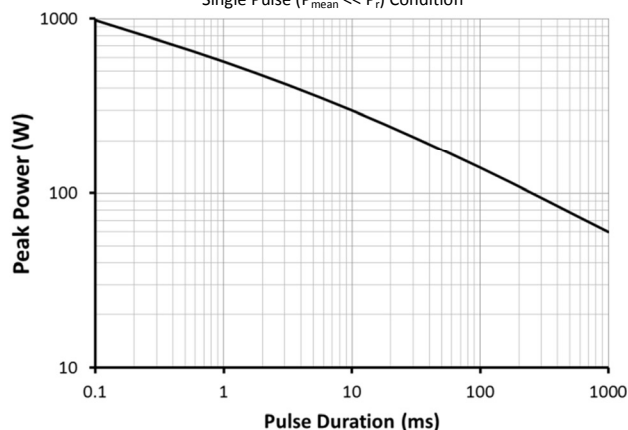
Typical Thermal Performance on FR4 Pad Heatsink



Characterisation carried out using 35μm PCB copper pad weights, with temperature of 90°C used as a maximum reference on the PCB. P_{90°C, 35μm} (W) is power when the measurement point reaches 90°C.

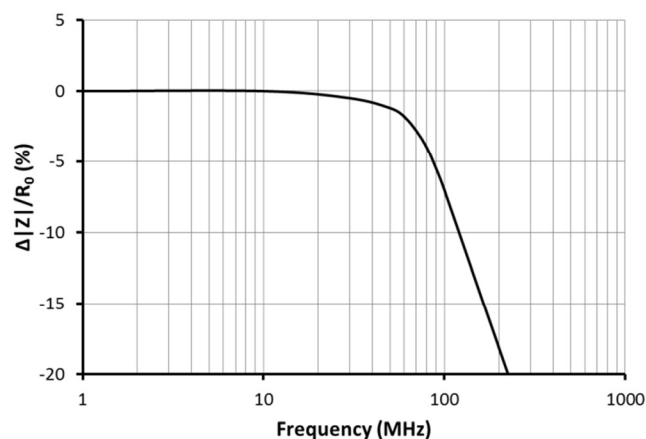
Pulse Performance

Single Pulse ($P_{\text{mean}} \ll P_r$) Condition



Pulse performance for durations ≥ 1 s is dependent on mounting conditions. The short term overload power limit is 2 x power rating for 5s.

Typical High Frequency Performance



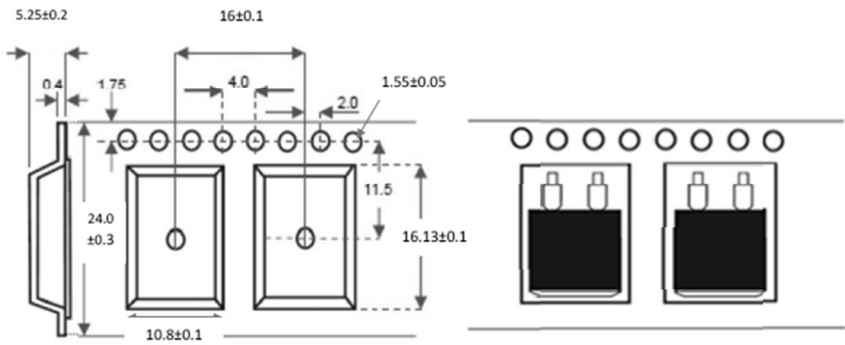
Typical high frequency characteristics for WSMHP35-220R. Self resonant frequency is 1GHz.

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Packing

WSMHP components are packed on 330mm diameter reels, with 100mm inner diameter, in tape of width 24mm and with a quantity of 500 pieces per reel. The dimensions of the tape and orientation of the component are as shown below.



Ordering Procedure

Example: WSMHP35-10KJ (WSMHP35 at 10 kilohms $\pm 5\%$, Pb-free)

W	S	M	H	P	3	5	-	1	0	K	J
1			2		3			4			

1	2	3	4	Packing
Type	Rating	Value	Tolerance	Plastic tape 500/reel
WSMHP	20	3 / 4 characters R = ohms K = kilohms	F = $\pm 1\%$	
	25		J = $\pm 5\%$	
	35			

General Note

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Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

TT Electronics:

[PWC-PWC2512-330R-F](#) [PWC-PWC2512LF-71K5-F](#) [HTC-1206LF10K0F](#) [WSMHP20-470RJ](#) [WSMHP20-91RF](#)
[WSMHP35-47RF](#) [WSMHP25-200RF](#) [WSMHP20-22RF](#) [WSMHP35-270RJ](#) [WSMHP35-51RF](#) [WSMHP20-47RJ](#)
[WSMHP25-130RJ](#) [WSMHP35-7R5J](#) [WSMHP35-47RJ](#) [WSMHP20-100RJ](#) [WSMHP25-1K0J](#) [WSMHP35-4R0F](#)
[WSMHP25-3R3J](#) [WSMHP25-100RF](#) [WSMHP35-200RF](#) [WSMHP35-3R3J](#) [WSMHP20-100RF](#) [WSMHP35-1K0F](#)
[WSMHP35-56RF](#) [WSMHP35-1K0J](#) [WSMHP25-1R0J](#) [WSMHP35-100RF](#) [WSMHP20-10RJ](#) [WSMHP20-1R5J](#)
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[WSMHP35-1R0J](#) [WSMHP35-1R5F](#) [WSMHP35-3R0J](#) [WSMHP25-10RF](#) [WSMHP35-5R0J](#) [WSMHP35-12RJ](#)
[WSMHP35-27RF](#) [WSMHP35-20RF](#) [WSMHP35-470RF](#) [WSMHP35-50RF](#) [WSMHP35-2R0J](#) [WSMHP25-1R5F](#)
[WSMHP20-20RF](#) [WSMHP35-2R0F](#) [WSMHP35-10RF](#) [WSMHP35-15RF](#) [WSMHP20-10RF](#) [WSMHP25-20RF](#)
[WSMHP35-100RJ](#) [WSMHP35-10RJ](#) [WSMHP20-20RJ](#) [WSMHP25-5R0F](#) [WSMHP35-2R5F](#) [WSMHP25-25RF](#)
[WSMHP35-300RF](#) [WSMHP35-30RF](#) [WSMHP25-0R5J](#) [WSMHP35-3R3F](#) [WSMHP35-150RJ](#) [WSMHP25-12RF](#)
[WSMHP35-3K3F](#) [PWC1206LF604KJ](#) [PWC1206LF4M42F](#) [PWC1206LF3M24J](#) [PWC1206LF402RF](#)
[PWC1206LF309RF](#) [PWC2010LF680KJ](#) [PWC2010LF576RJ](#) [PWC2512LF5R1F](#) [PWC2010LF3K32J](#)
[PWC2010LF3M01J](#) [PWC2010LF39RJ](#) [PWC2010LF316KF](#) [PWC2010LF30KJ](#) [PWC2010LF2K94J](#)
[PWC2010LF2K74F](#) [PWC2010LF21KJ](#) [PWC2010LF1R6J](#) [PWC2010LF1K96J](#) [PWC2010LF17R8F](#) [PWC1206LF9R1F](#)
[PWC1206LF8M06F](#) [PWC1206LF825RF](#) [PWC1206LF7R87F](#) [PWC1206LF866KJ](#) [PWC1206LF549KF](#)
[PWC1206LF48R7F](#) [PWC1206LF330RJ](#) [PWC1206LF3K48F](#) [PWC1206LF267RJ](#) [PWC1206LF287RF](#)
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