









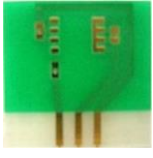

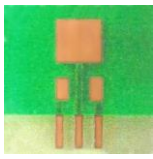
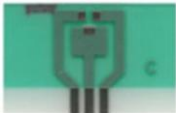



Bipolar Transistors, MOSFETs










List of Transistor Package Thermal Resistance

This application note provides reference values for thermal resistance in typical transistor packages. If the data sheet lists thermal resistance, use that value. RthJA should be used for thermal estimation during the initial study with the understanding that the values will vary depending on the different boards being measured (board size, copper foil area, copper foil thickness, number of board layers, etc.).

ROHM Package	Package Code	JEITA Package Code	RthJA [°C/W]	RthJC [°C/W]	PCB for which RthJA was measured
DFN1010-3W	DFN1010-3W	-	125	-	Outline dimensions: 40mm × 40mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 
DFN1616-6	DFN1616-6	-	83.4	-	Outline dimensions: 40mm × 40mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 
DFN1616-6W	DFN1616-6W	-	83.4	-	Outline dimensions: 40mm × 40mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 
EMT3	SOT-416	SC-75A	833	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 
EMT3F	SOT-416FL	SC-89	833	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 
EMT5	SOT-553	SC-107BB	2-element operation: 833 1-element operation: 1042	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 
EMT6	SOT-563	SC-107C	2-element operation: 833 1-element operation: 1042	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern 

ROHM Package	Package Code	JEITA Package Code	RthJA [°C/W]	RthJC [°C/W]	PCB for which RthJA was measured	
HEML1616L7	DFN1616-7T	-	83.4	-	Outline dimensions: 40mm x 40mm x 0.8mm Material: FR4 Trace thickness: Top 35µm	
HSML3030L10	HSML3030L10	-	62.5	-	Outline dimensions: 40mm x 40mm x 0.8mm Material: FR4 Trace thickness: Top 35µm	
HSML3333L9	DFN3333-9DC	-	83.3	-	Outline dimensions: 30mm x 30mm x 0.8mm Material: Ceramic Trace thickness: Top 35µm	
HSMT8	HSMT8	-	62.5	9.6	Outline dimensions: 40mm x 40mm x 0.8mm Material: FR4 Trace thickness: Top 35µm	
HSOP8	HSOP8S	-	41.7	5.6	Outline dimensions: 40mm x 40mm x 0.8mm Material: FR4 Trace thickness: Top 35µm	
HUML2020L3	DFN2020-3S	-	125	-	Outline dimensions: 25.4mm x 25.4mm x 1.6mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top 25.4mm x 25.4mm	
HUML2020L8	DFN2020-8S	-	62.5	-	Outline dimensions: 40mm x 40mm x 0.8mm Material: FR4 Trace thickness: Top 35µm	
LPTL	TO-263AB	-	80	4.2	Outline dimensions: 25mm x 27mm x 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern	
LPTS (D2PAK)	TO-263S (D2PAK)	SC-83	80	4.2	Outline dimensions: 25mm x 27mm x 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern	
MPT3	SOT-89	SC-62	250	-	Outline dimensions: 12mm x 20mm x 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern	
SMM1006	-	-	125	-	Outline dimensions: 40mm x 40mm x 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern	
SMT3	SOT-346	SC-59	625	-	Outline dimensions: 12mm x 20mm x 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern	
SMT5	SOT-25	SC-74A	2-element operation: 417 1-element operation: 625	-	Outline dimensions: 15mm x 20mm x 0.8mm Material: FR4 Trace thickness: Top 35µm Copper foil area: Top, reference land pattern	

ROHM Package	Package Code	JEITA Package Code	RthJA [°C/W]	RthJC [°C/W]	PCB for which RthJA was measured
SMT6	SOT-457	SC-74	2-element operation: 417 1-element operation: 625	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 
SOP8	SOP8	-	160	-	Outline dimensions: 20mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 
SOT-23	SOT-23	-	625	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 
TO-220AB	TO-220AB	-	80	0.8	Measured without PCB because of through-hole package
TO-220FM	TO-220FM	-	75	4.4	Measured without PCB because of through-hole package
TO-247	TO-247AD	-	30	0.6	Measured without PCB because of through-hole package
TO-252	TO-252 (DPAK)	SC-63	147	4.9	Outline dimensions: 20mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm 
TO-3PF	TO-3PF	-	40	2.1	Measured without PCB because of through-hole package
TSMT3	SOT-346T	SC-96	250	-	Outline dimensions: 22mm × 15mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 
TSMT5	SOT-25T	-	250	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 
TSMT6	SOT-457T	SC-95	250	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 
TSMT8	TSMT8	-	113	-	Outline dimensions: 25mm × 25mm × 0.8mm Material: FR4 Trace thickness: Top 35μm
TUMT3	SOT-323T	SC-113A	313	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern 

ROHM Package	Package Code	JEITA Package Code	RthJA [°C/W]	RthJC [°C/W]	PCB for which RthJA was measured	
TUMT5	SOT-353T	SC-113CA	125	-	Outline dimensions: 30mm × 30mm × 0.8mm Material: Ceramic Trace thickness: Top 35μm	
TUMT6	SOT-363T	SC-113DA	313	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
UMT3	SOT-323	SC-70	625	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
UMT3F	SOT-323FL	SC-85	625	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
UMT5	SOT-353	SC-88A	2-element operation: 833 1-element operation: 1042	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
UMT6	SOT-363	SC-88	2-element operation: 833 1-element operation: 1042	-	Outline dimensions: 15mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
VML0604	DFN0604-3	-	1250	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
VML0806	DFN0806-3	-	1250	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
VML1006	DFN1006-3	SC-101	1250	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	
VMT3	SOT-723	SC-105AA	833	-	Outline dimensions: 12mm × 20mm × 0.8mm Material: FR4 Trace thickness: Top 35μm Copper foil area: Top, reference land pattern	

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