PACKAGE THERMAL RESISTANCE TABLE

TYPE	PACKAGE CODE	STYLE LEAD COUNT	θ_{JC} (°C/W)	θ_{JA} (°C/W)	PIN COMMON TO SUBSTRATE — BOARD TYPE
Metal Can	K	TO-3 2L TO-3 4L	3 3	35 35	Case Case
Metal Can	H	TO-5 TO-39 TO-46 TO-52	40 15 80 N/A	150 150 440 360	— Pin 3* Pin 3* Pin 3*
CERDIP	J	J8 J14 J16 J18 J20 J24 J28	30 25 25 20 15 10 7	110 95 85 75 70 65 55	— — — — — —
Side Brazed	D	D8 D14 D16 D18 D20	30 25 25 20 15	100 85 80 75 70	— — — — —
LCC	L	LCC 20L	40	100	—
Flat Pack Glass Sealed	W	W10 W14	40 40	170 160	— —
Flat Pack Bottom Brazed	WB	WB10 WB14	40 40	160 150	— —
Plastic TO	P	TO-3P 3L (TO-247)	1.5	45	Pin 2
Plastic TO	Z	TO-226 3L (TO-92)	—	160	Pin 1 or 2 (By Device)
Plastic TO	T T T7	TO-220 3L TO-220 5L TO-220 7L	3 3 3	34 34 34	Pin 2 Pin 3 Pin 4
Plastic DD	M Q R	DD Pak 3L DD Pak 5L DD Pak 7L	3 3 3	34 34 34	Pin 2 Pin 3 Pin 4
Plastic PDIP 300mil	N8	N8 N8	45 50	100 150	Cu, 4 Layer A42, 4 Layer
Plastic PDIP 300mil	N	N14, Cu N16, Cu N18, Cu N20, Cu N24, Cu N28, Cu	33 34 29 28 27 30	70 70 65 62 60 59	4 Layer 4 Layer 4 Layer 4 Layer 4 Layer 4 Layer
Plastic SC70	SC6 SC8	SC6, 2 pin fused SC8, 3 pin fused	— —	270 270	Cu, Multilayer Cu, Multilayer
Plastic SOT/TSOT	S3 S5 S6 TS8	S3 S5 S6 TS8	100 50 51 47	202 215 192 195	A42, 4 Layer Pin 2 Cu, 4 Layer, Pin 2 Cu, 4 Layer, Pin 2 Cu, 4 Layer, Pin 2
Plastic SOT-223	ST	SOT-223	15	60 (est.)	Pin 2

TYPE	PACKAGE CODE	STYLE LEAD COUNT	θ_{JC} (°C/W)	θ_{JA} (°C/W)	PIN COMMON TO SUBSTRATE — BOARD TYPE
Plastic SO 150mil	S8	S8 S8 S8, 2 pin fused S8, 3 pin fused	39 — 37 35	120 190 90 85	Cu, 4 Layer A42, 4 Layer Cu, 4 Layer Cu, 4 Layer
	S	S14 S14 S16, 4 pin fused S16 S16	37 — 22 30 —	88 160 65 80 150	Cu, 4 Layer A42, 4 Layer Cu, 4 Layer Cu, 4 Layer A42, 4 Layer
	S8E	S8E	5	33	Cu, 4 Layer
Plastic SO 300mil	SW	SW16 SW18 SW20 SW24 SW28	30 27 25 23 20	80 70 60 60 55	4 Layer 4 Layer 4 Layer 4 Layer 4 Layer
Plastic MSOP & Exposed MSOP	MS8	MS8 MS8	40 45	163 273	Cu, 4 Layer A42, 4 Layer
	MS8E	MS8E	5–10	35–40	Cu, 4 Layer
	MS	MS10 MS12 MS16 MS16(12)	45 21 21 21	160 135 120 135	Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer
	MSE	MSE10 MSE12 MSE16 MSE16(12)	5–10 5–10 5–10 5–10	35–40 35–40 35–40 35–40	Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer
Plastic SSOP 5.3mm	G	G16 G20 G24 G28 G36 G44	40 30 25 25 25 25	110 90 88 80 70 70	Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer
SSOP Narrow 150mil	GN	GN16 GN16/ 4 pin fused GN20 GN24 GN28	40 37 30 30 25	110 90 90 85 80	Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer
SSOP Wide 300mil	GW	GW36 GW44	20 17	65 60	Cu, 4 Layer Cu, 4 Layer
Plastic TSSOP 4.4mm	F	F14 F20 F20, fused	17 20 18	100 90 80	Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer
	FE	FE16 FE20 FE24 FE28 FE38 FE38(31)	10 10 10 5–10 5–10 5–10	38 38 33 30 28 28	Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer Cu, 4 Layer
Plastic TSSOP 6.1mm	FW	FW48	—	82	Cu, 4 Layer

PACKAGE THERMAL RESISTANCE TABLE

TYPE	PACKAGE CODE	STYLE LEAD COUNT	θ_{JC} (°C/W)	θ_{JA} (°C/W)	PIN COMMON TO SUBSTRATE — BOARD TYPE
Plastic DFN (Exposed Pad)					
2 × 2	DC	DC3,DC4,DC6,DC8	16.7	80.6	4 Layer
	KC	KC8	17.2	88.5	4 Layer
2 × 3	DCB	DCB6,DCB8	9.6	64	4 Layer
3 × 2	DDB	DDB8,DDB10,DDB12	16.8	55	4 Layer
3 × 3	DD KD	DD8,DD10,DD12,DD12MA KD10	5.5	43	4 Layer
4 × 3	DE UE	DE12 UE12	5.5	43	4 Layer
	DE KE	DE14,DE16 KE14	5.5	43	4 Layer
4 × 4	DF	DF12	3.7	42.6	4 Layer
5 × 3	DHC	DHC16	3.2	41.7	4 Layer
5 × 4	DHD	DHD16	4.3	41.7	4 Layer
5 × 5	DH	DH16	3.0	34	4 Layer
6 × 3	DJC	DJC22	4.3	31.8	4 Layer
6 x 4	DJD	DJD24	4.3	37	4 Layer
7 × 4	DKD	DKD32,DKD24	7.5	34	4 Layer

TYPE	PACKAGE CODE	STYLE LEAD COUNT	θ_{JC} (°C/W)	θ_{JA} (°C/W)	PIN COMMON TO SUBSTRATE — BOARD TYPE
Plastic QFN (Exposed Pad)					
3 × 3	UD PD	UD16,UD20 PD16,PD20	7.5	68	4 Layer
3 × 2	UDB	UDB10	5.0	137	4 Layer
3 × 4	UDC PDC	UDC20,UDC20MA,UDC24 PDC20	6.8	52	4 Layer
3 × 5	UDD	UDD24	5.0	46	4 Layer
4 × 4	UF PF	UF16,UF20,UF24,UF28 PF24,PF28	4.5	47	4 Layer
4 × 5	UFD	UFD20,UFD24,UFD28	3.4	43	4 Layer
4 × 6	UFE	UFE26,UFE38	4.0	38	4 Layer
4 × 7	UFF	UFF34,UFF36,UFF44	2.6	36.4	4 Layer
4 × 9	UFH	UFH44	3.0	34	4 Layer
5 × 5	UH	UH20,UH24,UH32,UH40	7.3	44	4 Layer
5 × 6	UHE	UHE28,UHE36,UHE42	5.0	43	4 Layer
5 × 7	UHF	UHF38	2.0	34	4 Layer
5 × 8	UHG	UHG39/UHG52	3.8	36	4 Layer
5 × 9	UHH	UHH48,UHH56	2.0	31	4 Layer
6 × 6	UJ	UJ40	2.0	33	4 Layer
7 × 7	UK	UK44,UK48	3.0	34	4 Layer
7 × 8	UKG WKG	UKG52 WKG52	2.0	31	4 Layer
7 × 9	UKH WKH	UKH64 WKH56	2.0	29	4 Layer
9 × 9	UP WP	UP64 WP64	1.0	29	4 Layer

CONSULT INDIVIDUAL DATA SHEETS FOR PRODUCT-SPECIFIC VALUES OR REQUIREMENTS.

NOTES:

1. These values are offered for general reference use.
2. High effective thermal conductivity board (JEDEC 4 Layer) was used for the thermal resistance calculations.
3. DFN and QFN package type dimensions are mm × mm.
4. All DFN/QFN are Cu leadframe.
5. The values for Plastic Packages are for copper material and non-fused type unless otherwise shown in the Style Lead Count column.
6. Construction variations, such as die size, material, leads fused internally to Die Attach Pad, and PCB layout, significantly influence thermal performance.
7. For θ_{JC} calculation, heat sink apply to pkg bottom (exposed pad package only)
8. Cu = Copper, A42 = Alloy 42.

*3-Lead Versions, Metal Can