



-DRAWING NOT TO SCALE-



TITLE:
PACKAGE OUTLINE
12,16,20,24,28L TQFN 4x4x0.75mm

APPROVAL

DOCUMENT CONTROL NO.
21-0139

REV.

1/3

COMMON DIMENSIONS															
PKG	12L 4x4			16L 4x4			20L 4x4			24L 4x4			28L 4x4		
REF.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80
A1	0.0	0.02	0.05	0.0	0.02	0.05	0.0	0.02	0.05	0.0	0.02	0.05	0.0	0.02	0.05
A2	0.20 REF			0.20 REF			0.20 REF			0.20 REF			0.20 REF		
b	0.25	0.30	0.35	0.25	0.30	0.35	0.20	0.25	0.30	0.18	0.23	0.30	0.15	0.20	0.25
D	3.90	4.00	4.10	3.90	4.00	4.10	3.90	4.00	4.10	3.90	4.00	4.10	3.90	4.00	4.10
E	3.90	4.00	4.10	3.90	4.00	4.10	3.90	4.00	4.10	3.90	4.00	4.10	3.90	4.00	4.10
e	0.80 BSC.			0.65 BSC.			0.50 BSC.			0.50 BSC.			0.40 BSC.		
k	0.25	-	-	0.25	-	-	0.25	-	-	0.25	-	-	0.25	-	-
N	12			16			20			24			28		
ND	3			4			5			6			7		
NE	3			4			5			6			7		
Jedec Var.	WGGB			WGGC			WGGD-1			WGGD-2			WGGE		

NOTES:

1. DIMENSIONING & TOLERANCING CONFORM TO ASME Y14.5M-2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES ARE IN DEGREES.
3. N IS THE TOTAL NUMBER OF TERMINALS.
4. THE TERMINAL #1 IDENTIFIER AND TERMINAL NUMBERING CONVENTION SHALL CONFORM TO JESD 95-1 SPP-012. DETAILS OF TERMINAL #1 IDENTIFIER ARE OPTIONAL, BUT MUST BE LOCATED WITHIN THE ZONE INDICATED. THE TERMINAL #1 IDENTIFIER MAY BE EITHER A MOLD OR MARKED FEATURE.
5. DIMENSION b APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.25mm AND 0.30mm FROM TERMINAL TIP.
6. ND AND NE REFER TO THE NUMBER OF TERMINALS ON EACH D AND E SIDE RESPECTIVELY.
7. DEPOPULATION IS POSSIBLE IN A SYMMETRICAL FASHION.
8. DRAWING CONFORMS TO JEDEC MO220, EXCEPT FOR T2444-3, T2444-4 AND T2844-1.
9. MARKING IS FOR PACKAGE ORIENTATION REFERENCE ONLY.
10. WARPAGE SHALL NOT EXCEED 0.10mm.
11. LEAD CENTERLINES TO BE AT TRUE POSITION AS DEFINED BY BASIC DIMENSION "e", ± 0.05 .
12. NUMBER OF LEADS SHOWN ARE FOR REFERENCE ONLY.
13. MATERIAL MUST COMPLY WITH BANNED AND RESTRICTED SUBSTANCES SPEC # 10-0131.
14. ALL DIMENSIONS ARE THE SAME FOR LEADED (-) & PbFREE (+) PACKAGE CODES.

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2/3

DIMENSION VARIATIONS												
PKG. CODES	EXPOSED PAD						LEAD				CORNER LEAD CHAMFER	
	D2			E2			L			R (LEAD TIP RADIUS)	C	L4
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	REF.	REF.	REF.
T1244-3	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1244-3C	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1244-4	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1244-4C	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1644-3	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1644-3C	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1644-4	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1644-4A	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T1644-4C	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T2044-2	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T2044-2C	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T2044-3	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T2044-3C	1.95	2.10	2.25	1.95	2.10	2.25	0.45	0.55	0.65	-	-	-
T2044-4	2.85	2.90	2.95	2.85	2.90	2.95	0.25	0.30	0.35	0.125	-	-
T2044-5	2.60	2.70	2.80	2.60	2.70	2.80	0.35	0.40	0.45	0.203	-	-
T2044-5C	2.60	2.70	2.80	2.60	2.70	2.80	0.35	0.40	0.45	0.203	-	-
T2444-2	1.95	2.10	2.25	1.95	2.10	2.25	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444-2C	1.95	2.10	2.25	1.95	2.10	2.25	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444-3	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444-3C	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444-4	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444-4C	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444N-4	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444M-1	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2444MK-1	2.45	2.60	2.63	2.45	2.60	2.63	0.30	0.40	0.50	-	0.120 X 45°	0.31
T2844-1	2.50	2.60	2.70	2.50	2.60	2.70	0.30	0.40	0.50	-	-	-
T2844-1C	2.50	2.60	2.70	2.50	2.60	2.70	0.30	0.40	0.50	-	-	-
T2844N-1	2.65	2.70	2.75	2.65	2.70	2.75	0.30	0.40	0.50	-	-	-

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3/3