



-DRAWING NOT TO SCALE-



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

APPROVAL

DOCUMENT CONTROL NO.

REV.

21-0139

P

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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	-	-
L	0.45	0.55	0.65	0.45	0.55	0.65	0.45	0.55	0.65	0.30	0.40	0.50	0.30	0.40	0.50
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		

DIMENSION VARIATIONS										
PKG. CODE	D2			E2			L			R (LEAD TIP RADIUS)
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	
T2044-4	2.85	2.90	2.95	2.85	2.90	2.95	0.25	0.30	0.35	0.125 REF
T2044-4C	2.85	2.90	2.95	2.85	2.90	2.95	0.25	0.30	0.35	0.125 REF
T2044-5	2.60	2.70	2.80	2.60	2.70	2.80	0.35	0.40	0.45	0.203 REF

EXPOSED PAD VARIATIONS							
PKG. CODES	D2			E2			
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	
T1244-3	1.95	2.10	2.25	1.95	2.10	2.25	
T1244-4	1.95	2.10	2.25	1.95	2.10	2.25	
T1644-3	1.95	2.10	2.25	1.95	2.10	2.25	
T1644-4	1.95	2.10	2.25	1.95	2.10	2.25	
T1644-4C	1.95	2.10	2.25	1.95	2.10	2.25	
T2044-2	1.95	2.10	2.25	1.95	2.10	2.25	
T2044-3	1.95	2.10	2.25	1.95	2.10	2.25	
T2444-2	1.95	2.10	2.25	1.95	2.10	2.25	
T2444-3	2.45	2.60	2.63	2.45	2.60	2.63	
T2444-3C	2.45	2.60	2.63	2.45	2.60	2.63	
T2444-4	2.45	2.60	2.63	2.45	2.60	2.63	
T2444-4C	2.45	2.60	2.63	2.45	2.60	2.63	
T2444N-4	2.45	2.60	2.63	2.45	2.60	2.63	
T2444M-1	2.45	2.60	2.63	2.45	2.60	2.63	
T2444MK-1	2.45	2.60	2.63	2.45	2.60	2.63	
T2844-1	2.50	2.60	2.70	2.50	2.60	2.70	
T2844-1C	2.50	2.60	2.70	2.50	2.60	2.70	
T2844N-1	2.65	2.70	2.75	2.65	2.70	2.75	

CORNER LEAD CHAMFER VARIATION		
PKG. CODES	C	L4
T2444-2	0.120 X 45° REF	0.31 REF
T2444-3	0.120 X 45° REF	0.31 REF
T2444-3C	0.120 X 45° REF	0.31 REF
T2444-4	0.120 X 45° REF	0.31 REF
T2444-4C	0.120 X 45° REF	0.31 REF
T2444M-1	0.120 X 45° REF	0.31 REF
T2444MK-1	0.120 X 45° REF	0.31 REF
T2444N-4	0.120 X 45° REF	0.31 REF



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NOTES:

1. DIMENSIONING & TOLERANCING CONFORM TO ASME Y14.5M-1994.
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. COPLANARITY APPLIES TO THE EXPOSED HEAT SINK SLUG AS WELL AS THE TERMINALS.
9. DRAWING CONFORMS TO JEDEC MO220, EXCEPT FOR T2444-3, T2444-4 AND T2844-1.
10. MARKING IS FOR PACKAGE ORIENTATION REFERENCE ONLY.
11. COPLANARITY SHALL NOT EXCEED 0.08mm.
12. WARPAGE SHALL NOT EXCEED 0.10mm.
13. LEAD CENTERLINES TO BE AT TRUE POSITION AS DEFINED BY BASIC DIMENSION 'e', ±0.05.
14. NUMBER OF LEADS SHOWN ARE FOR REFERENCE ONLY.
15. MATERIAL MUST COMPLY WITH BANNED AND RESTRICTED SUBSTANCES SPEC # 10-0131.
16. ALL DIMENSIONS ARE THE SAME FOR LEADED (-) & PbFREE (+) PACKAGE CODES.



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