



SPECIFICATION NO.

REV.

2300-0011

A

DOCUMENT TITLE: THERMAL CHARACTERISTICS OF MICREL IC ASSEMBLY

OWNER:

PACKAGE ENGINEER

REQUIRED APPROVALS:

PACKAGE ENGINEER
DIRECTOR OF PACKAGING AND SUBCONTRACT ENGINEERING
RELIABILITY MANAGER
QUALITY VP

AFFECTED PARTY NOTIFICATION: (DO NOT INCLUDE REGULAR DISTRIBUTION)

DESIGN ENG ANALOG
DESIGN PROJECT K8692
DESIGN PROJECT K8942
DESIGN GRP1
DESIGN GRP2
DESIGN GRP3
DESIGN GRP4
NORWAY
SCOTLAND

ATTENTION: NO CHANGES TO THIS COVER PAGE ALLOWED EXCEPT BY SUBMISSION OF FORM #18-6731 TO THE QUALITY SYSTEMS MANAGER OR DESIGNEE.



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1.0 TITLE

THERMAL CHARACTERISTICS OF MICREL IC ASSEMBLY

2.0 PURPOSE

THE PURPOSE OF THIS DOCUMENT IS TO PROVIDE A CENTRALIZED LISTING OF PACKAGE THERMAL CHARACTERISTICS (JUNCTION-TO-AMBIENT AND JUNCTION-TO-CASE).

3.0 SCOPE

THIS LISTING IS NOT SPECIFIC TO INDIVIDUAL DEVICES. IT IS REPRESENTATIVE OF TYPICAL VALUE FOR A GIVEN PACKAGE AND LEAD COUNT.

4.0 APPLICABLE DOCUMENTS

4.1 EIA/JESD51-1, 2, 3, 4, 5, 7

5.0 EQUIPMENT AND SUPPLIES

N/A

6.0 SAFETY

N/A

7.0 REQUIREMENTS

N/A



8.0 THERMAL CHARACTERISTICS LISTING

PACKAGES	LD#	Θ_{JA} (°C/W)	Θ_{JC} (°C/W)	PCB LAYERS	COMMENT	DATA SOURCE
MSOP	8	160	67.8	4		UNISEM
MSOP-FUSED	8	96.8		4	5, 6, 7, 8 FUSED	UNISEM
MSOP-EPAD	8	64.4	19.2	4		UNISEM
MSOP	10	130.5	42.6	4		UNISEM
MSOP-EPAD	10	76.7	9.63	4		UNISEM
MLF1212D-FLIP CHIP	4	140.7	60.04	4	COPPER PILLAR	UNISEM
MLF1216D	4	172.6	127	4		UNISEM
MLF1616D	6	92.4	56.4	4		UNISEM
MLF22D	8	90	45	4		
MLF33D	10	60.7	28.7	4		UNISEM
MLF33Q	16	59		4	$\Psi_{JB}=38^{\circ}\text{C/W}$	AMKOR
MLF33Q-COL	16	71.3	52.3	4		UNISEM
MLF44Q	16	50.6	15.8	4		UNISEM
MLF44Q	24	43		4	$\Psi_{JB}=30^{\circ}\text{C/W}$	AMKOR
MLF45D	20	44.1		4		UNISEM
MLF55Q	32	29.5	10.3	4	$\Psi_{JB}=20^{\circ}\text{C/W}$	UNISEM
MLF77Q	44	24		4	$\Psi_{JB}=12^{\circ}\text{C/W}$	AMKOR
QSOP	16	100.8	48.4	4		UNISEM
QSOP-EPAD	16	41		4		AMKOR
QSOP	20	84.9	31.4	4		UNISEM
SC70	3	258.3		4		UNISEM
SC70	5	256.5		4		UNISEM
SOICN	8	98.9	48.8	4		UNISEM
SOICN-FUSED	8	63		4		THERMAX
SOICN-EPAD	8	41	14.7	4		AMKOR/UNISEM (R THJC)
SOICN	14	80.6	43.9	4		UNISEM
SOICN	16	78.6	30	4		UNISEM
SOICW	16	77.9	34.5	4		UNISEM
SOICW	18	64.	26.7	4		UNISEM
SOICW	20	57.9	24.5	4		UNISEM
SOICW	24	61.6	33.7	4		UNISEM
SOICW	28	53.4	29.1	4		UNISEM
SOT223	4	108.3	60.69	4	NON-CONDUCTIVE EPOXY	UNISEM
SOT23	3	202.7	149.3	4	PIN 2 FUSED	UNISEM
SOT23	5	252.7		4	PIN 2 FUSED	UNISEM
SOT23	6	177.2	109.2	4	PIN 2, 5 FUSED	UNISEM
SOT23	8	195		4		CARSEM
SPAK	5	38		4	SOFT SOLDER	CARSEM
TMLF1010Q-FLIP CHIP	6	192.93	90.42	4	COPPER PILLAR	UNISEM
TMLF1216D	4	172.6	127	4		UNISEM
TMLF1616D	6	92.4	56.4	4		UNISEM
TMLF22D	8	90	45	4		
TMLF2025Q-FLIP CHIP	16	96.4	41.89	4	COPPER PILLAR	UNISEM
TO263	5	26.2	6.3	4	SOFT SOLDER	UNISEM
TO220	5	31.4	6.9	4	SOFT SOLDER	UNISEM



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TO92	3	131.9		4		CARSEM
TQFP (7X7)	32	50	20	4		AMKOR
TQFP (7X7) -EPAD	32	28	4	4		AMKOR
TQFP (7X7)	48	57	13	4		AMKOR
TQFP (10X10)	64	42		4		AMKOR
TQFP (10X10) -EPAD	64	22		4		AMKOR
TQFP (14X14) -EPAD	80	18		4		AMKOR
TSOT	5	252.7		4		UNISEM
TSOT	6	177.2	109.2	4		UNISEM
TSSOP (4.4)	14	96.3	25.8	4		UNISEM
TSSOP (4.4)	16	97.5	29.9	4		UNISEM
TSSOP (4.4) -EPAD	16	36.5	6.8	4		UNISEM
TSSOP (4.4)	20	84.8	24	4		UNISEM
TSSOP (4.4) -EPAD	20	32.2	12.9	4		UNISEM
TSSOP (4.4)	24	78	23.5	4		UNISEM

