MIC5392/3

High-Performance Dual 150 mA LDO

Features

- 2.5V to 5.5V Input Voltage Range
- Two 150 mA Output Current LDOs
- High Output Accuracy
  - ±2% Initial Accuracy
- Low Quiescent Current (32 µA per LDO)
- Stable with 1 µF Ceramic Output Capacitors
- Independent Enable Pins
- Low Dropout Voltage (155 mV at 150 mA)
- Thermal Shutdown Protection
- Current Limit Protection
- Internal 25Ω Output Discharge Circuit (MIC5393)
- 1.2 mm × 1.2 mm X2DFN Package (H ≤ 0.4 millimeter)
- 1.2 mm × 1.2 mm UDFN Package

Applications

- Smartphones
- Tablet PCs
- GPS, PMP, PDAs, and Handhelds
- Audio Codec Power
- Portable Electronics
- 5V Systems

General Description

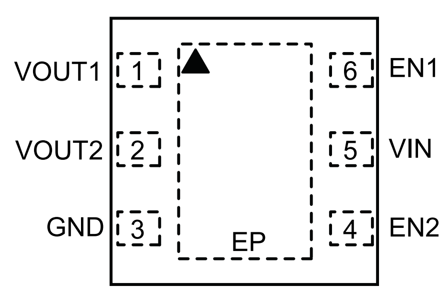
The MIC5392/3 is a tiny, dual low-dropout linear regulator ideally suited for portable electronics. It is ideal for general purpose/digital applications that require high power supply ripple rejection (PSRR) >60 dB, eliminating the need for a bypass capacitor and providing two enable pins for maximum flexibility. The MIC5392/3 integrates two high-performance 150 mA LDOs into a tiny 6-pin, 1.2 mm × 1.2 mm leadless UDFN or X2DFN package, which provides exceptional thermal package characteristics.

The MIC5392/3 is a µCap design that enables operation with very small ceramic output capacitors for stability, thereby reducing required board space and component cost. The combination of low dropout voltage, high power supply rejection, and exceptional thermal package characteristics makes it ideal for powering mobile phones camera modules, image sensors, PDAs, MP3 players, and audio codec power applications.

The MIC5392/3 is available in fixed-output voltages in the tiny 6-pin 1.2 mm × 1.2 mm leadless UDFN or X2DFN package, which is only 1.44 mm^2 in area. Additional voltage options are available.

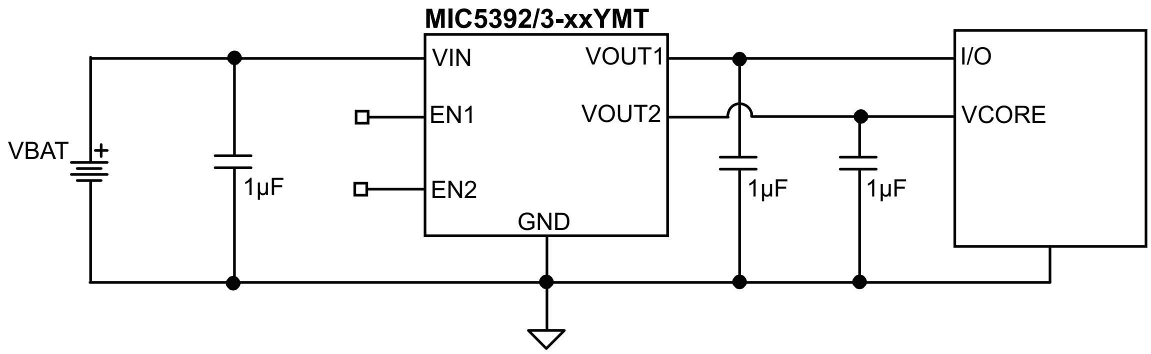
Package Type

MIC5392/3
UDFN-6 (MT), X2DFN-6 (MX)
(Top View)



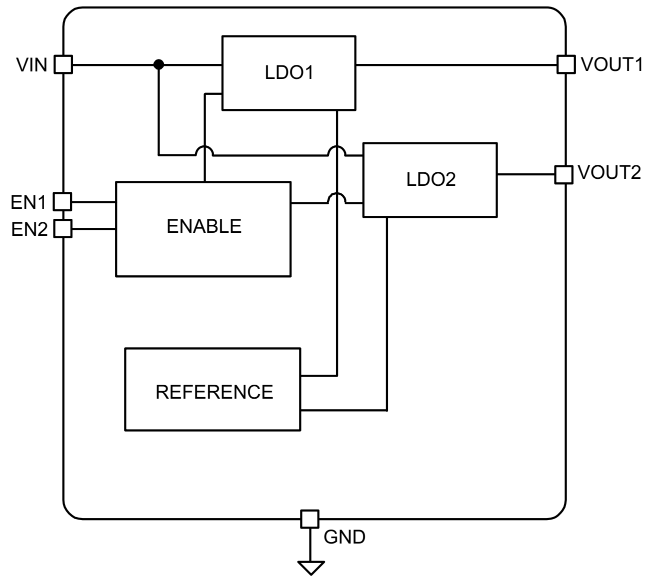
Typical Application Schematic

Camera DSP Power Supply Circuit

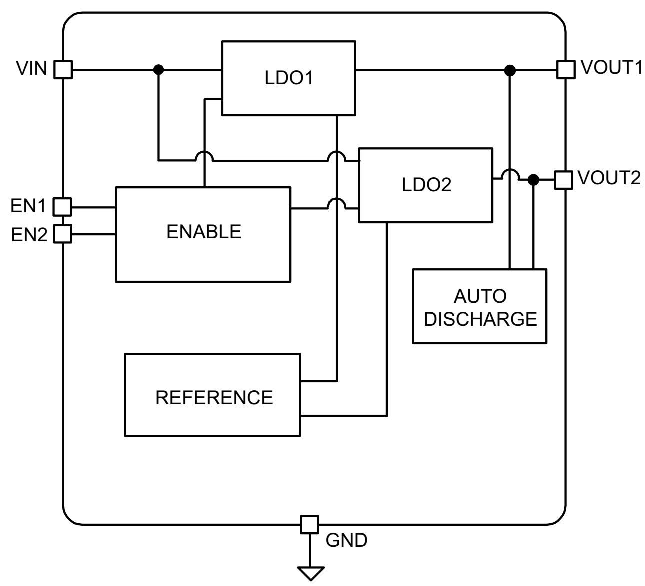


Functional Block Diagrams

MIC5392



MIC5393



1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

Supply Voltage (V_{IN}) ..... –0.3V to +6V
Enable Voltage (V_{EN1}, V_{EN2}) ..... –0.3V to V_{IN}
Power Dissipation (P_D), Note 1 ..... Internally Limited
ESD Rating, Note 2 ..... 2 kV

Operating Ratings ‡

Supply Voltage (V_{IN}) ..... +2.5V to +5.5V
Enable Voltage (V_{EN1}, V_{EN2}) ..... –0.3V to V_{IN}

† Notice: Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

‡ Notice: The device is not guaranteed to function outside its operating ratings.

Note 1: The maximum allowable power dissipation of any T_A (ambient temperature) is $P_{D(MAX)} = (T_{J(MAX)} – T_A)/\theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown.

2: Devices are ESD sensitive. Handling precautions are recommended. Human body model, 1.5 kΩ in series with 100 pF.

ELECTRICAL CHARACTERISTICS

Electrical Characteristics: $V_{IN} = V_{EN1} = V_{EN2} = V_{OUT}$ + 1V; higher of the two regulator outputs; $I_{OUTLDO1} = I_{OUTLDO2}$ = 100 µA; $C_{OUT1} = C_{OUT2}$ = 1 µF; T_A = +25°C; **Bold** values are valid for –40°C to +125°C unless noted. (**Note 1**).

Parameters	Symbol	Min.	Typ.	Max.	Units	Conditions
Output Voltage Accuracy	V_{OUT}	–2.0	—	+2.0	%	Variation from nominal V_{OUT}
		–3.0	—	**+3.0**		Variation from nominal V_{OUT}; –40°C to +125°C
Line Regulation	$\Delta V_{OUT}/(V_{OUT} \times \Delta V_{IN})$	—	0.02	0.3	%/V	$V_{IN} = V_{OUT}$ +1V to 5.5V
Load Regulation	$\Delta V_{OUT}/V_{OUT}$	—	**0.3**	1	%	I_{OUT} = 100 µA to 150 mA
Dropout Voltage	V_{DO}	—	50	**110**	mV	I_{OUT} = 50 mA
		—	155	**310**		I_{OUT} = 150 mA
Ground Pin Current	I_{GND}	—	32	**45**	µA	V_{EN1} = High; V_{EN2} = Low; I_{OUT} = 0 mA
		—	32	**45**		V_{EN1} = Low; V_{EN2} = High; I_{OUT} = 0 mA
		—	57	**85**		$V_{EN1} = V_{EN2}$ = High; $I_{OUT1} = I_{OUT2}$ = 0 mA
Ground Pin Current in Shutdown	I_{SHDN}	—	0.05	1	µA	$V_{EN1} = V_{EN2}$ = 0V
Ripple Rejection	PSRR	—	60	—	dB	f = 1 kHz; C_{OUT} = 1 µF
Current Limit	I_{LIM}	—	325	550	mA	V_{OUT} = 0V
Output Voltage Noise	e_N	—	100	—	μV_{RMS}	C_{OUT} = 1µF, 10 Hz to 100 kHz
Auto-Discharge NFET Resistance	R_{DSCG}	—	25	—	Ω	MIC5393 Only; $V_{EN1} = V_{EN1}$ = 0V; V_{IN} = 3.6V
Enable Inputs (EN1/EN2)						
Enable Input Voltage	V_{EN}	—	—	**0.2**	V	Logic Low
		1.2	—	—		Logic High
Enable Input Current	I_{EN}	—	0.01	**1**	µA	$V_{IL} \leq 0.2V$
		—	0.01	**1**		$V_{IH} \geq 1.2V$
Turn-On Time	t_{ON}	—	50	**125**	µs	—

Note 1: Specification for packaged product only.

TEMPERATURE SPECIFICATIONS

Parameters	Symbol	Min.	Typ.	Max.	Units	Conditions
Temperature Ranges						
Junction Temperature Range	T_J	–40	—	+125	°C	Note 1
Storage Temperature Range	T_S	–65	—	+150	°C	—
Ambient Temperature Range	T_A	–40	—	+85	°C	—
Lead Temperature	—	—	—	+260	°C	Soldering, 10 sec.
Package Thermal Resistances						
Thermal Resistance, UDFN-6	θ_{JA}	—	173	—	°C/W	—
Thermal Resistance, X2DFN-6						

Note 1: The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction to air (i.e., T_A, T_J, θ_{JA}). Exceeding the maximum allowable power dissipation will cause the device operating junction temperature to exceed the maximum +125°C rating. Sustained junction temperatures above +125°C can impact the device reliability.

2.0 TYPICAL PERFORMANCE CURVES

Note: The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.

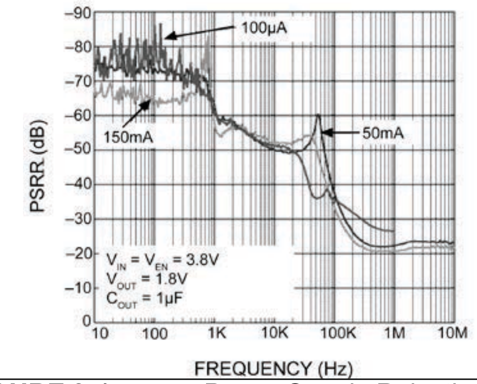


FIGURE 2-1: Power Supply Rejection Ratio.

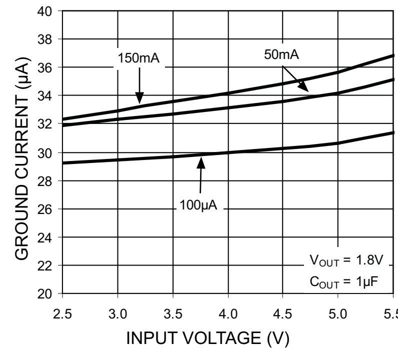


FIGURE 2-4: Ground Current vs. Input Voltage.

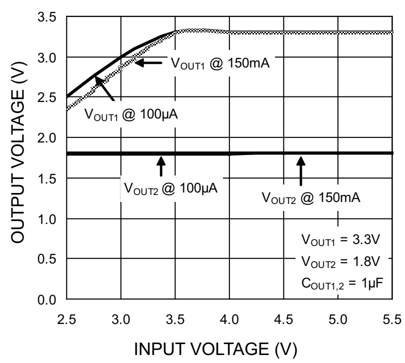


FIGURE 2-2: Output Voltage vs. Input Voltage.

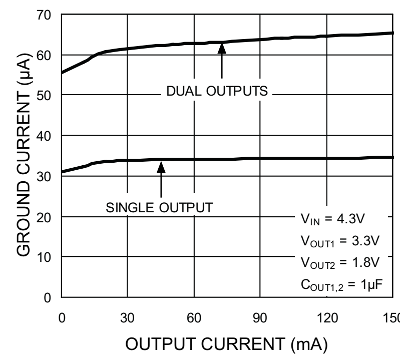


FIGURE 2-5: Ground Current vs. Output Current.

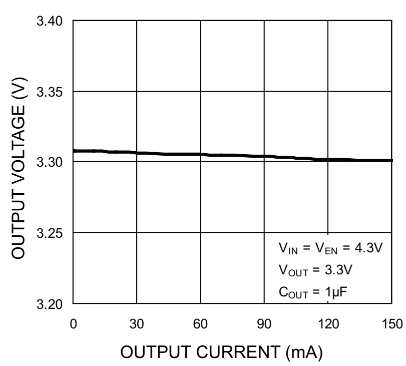


FIGURE 2-3: Output Voltage vs. Output Current.

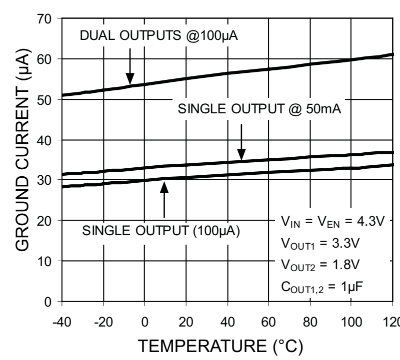


FIGURE 2-6: Ground Current vs. Temperature.

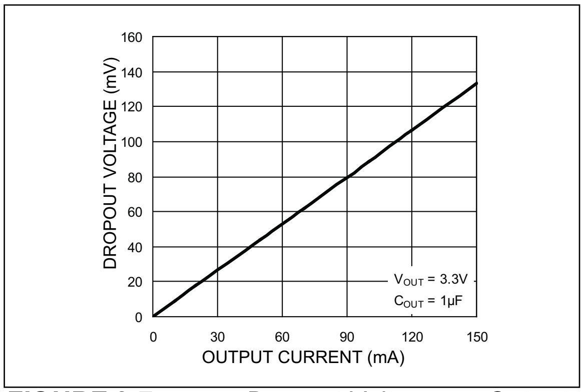


FIGURE 2-7: *Dropout Voltage vs. Output Current.*

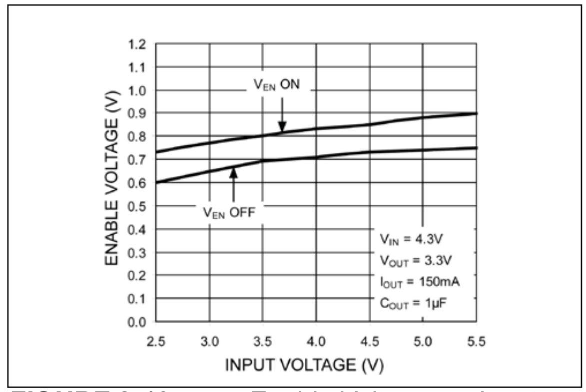


FIGURE 2-10: *Enable Voltage vs. Input Voltage.*

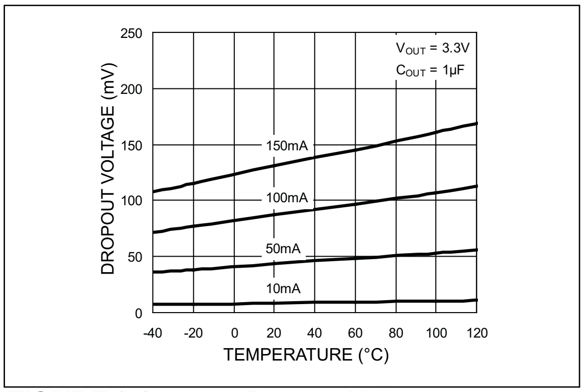


FIGURE 2-8: *Dropout Voltage vs. Temperature.*

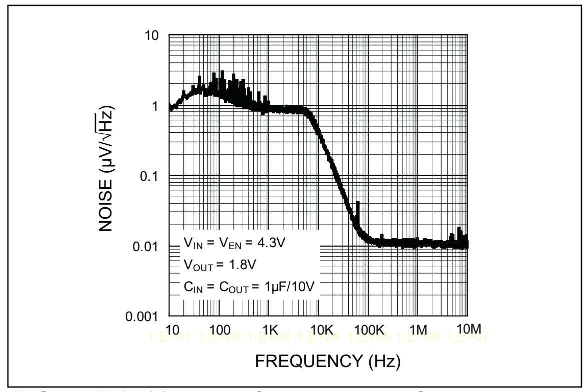


FIGURE 2-11: *Output Noise Spectral Density.*

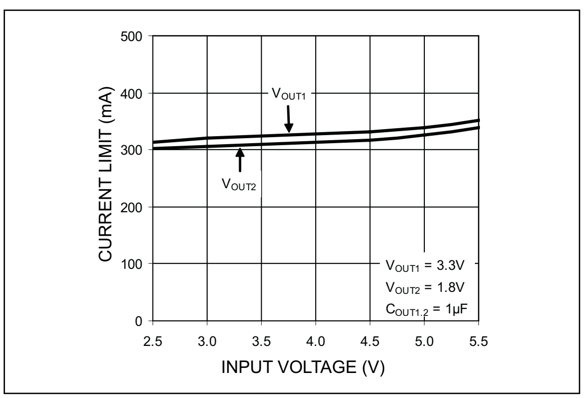


FIGURE 2-9: *Current Limit vs. Input Voltage.*

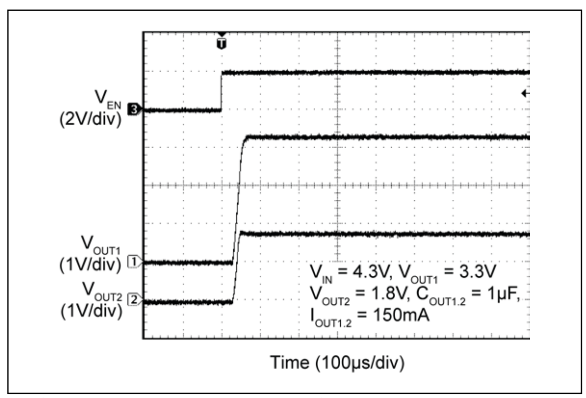


FIGURE 2-12: *Turn-On Time.*

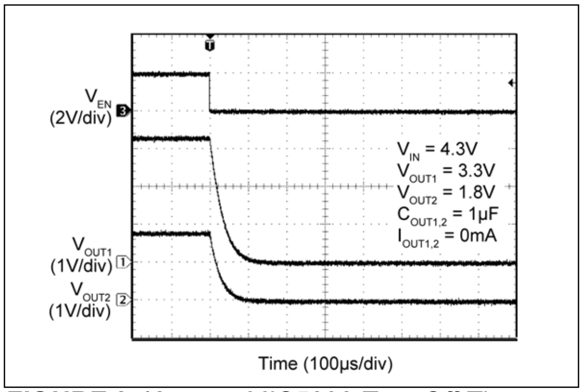


FIGURE 2-13: *MIC5393 Turn-Off Time (Auto-Discharge).*

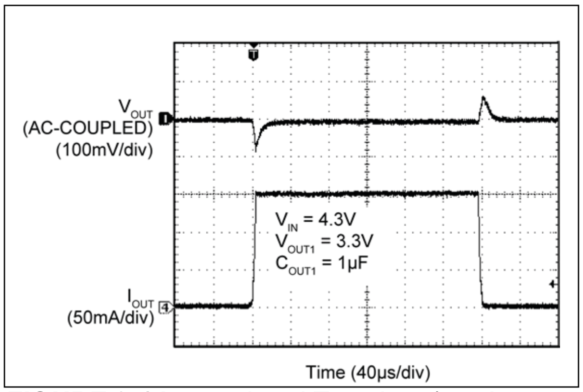


FIGURE 2-14: *Load Transient (5 mA to 150 mA).*

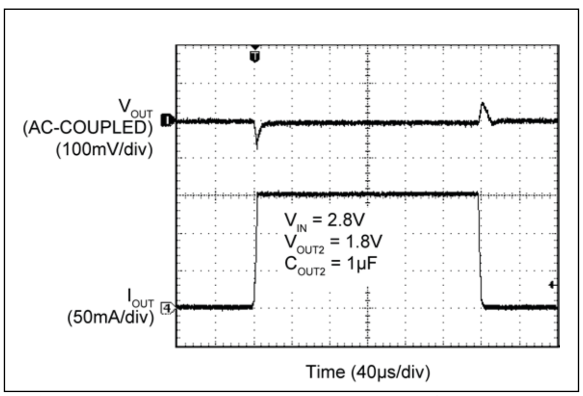


FIGURE 2-15: *Load Transient (5 mA to 150 mA).*

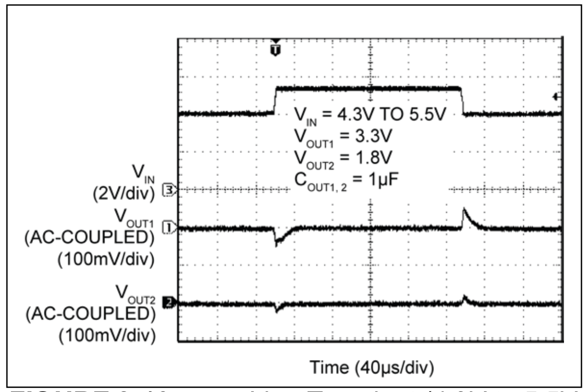


FIGURE 2-16: *Line Transient (4.3V to 5.5V @ 150 mA).*

3.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 3-1.

TABLE 3-1: PIN FUNCTION TABLE

Pin Number	Pin Name	Description
1	VOUT1	Output regulator 1. Connect a capacitor to ground.
2	VOUT2	Output regulator 2. Connect a capacitor to ground.
3	GND	Ground.
4	EN2	Enable input for regulator 2. Logic High enables operation of regulator 2. Logic Low will shut down regulator 2. Do not leave floating.
5	VIN	Input voltage supply. Connect a capacitor to ground.
6	EN1	Enable input for regulator 1. Logic High enables operation of regulator 1. Logic Low will shut down regulator 1. Do not leave floating.
EP	ePad	Exposed heat sink pad. Connect to ground.

4.0 APPLICATION INFORMATION

MIC5392/3 is a dual 150 mA LDO in a small 1.2 mm × 1.2 mm package. The MIC5393 includes an auto-discharge circuit for each of the LDO outputs that are activated when the output is disabled. The MIC5392/3 regulator is fully protected from damage due to fault conditions through linear current limiting and thermal shutdown. The MIC5392/3 is not suitable for RF transmitter systems.

4.1 Input Capacitor

The MIC5392/3 is a high-performance, high-bandwidth device. An input capacitor of 1 µF capacitor is required from the input to ground to provide stability. Low-ESR ceramic capacitors provide optimal performance at a minimum of space. Additional high-frequency capacitors, such as small valued NPO dielectric type capacitors, help filter out high-frequency noise and are good practice in any RF-based circuit. X5R or X7R dielectrics are recommended for the input capacitor. Y5V dielectrics lose most of their capacitance over temperature and are therefore, not recommended.

4.2 Output Capacitor

The MIC5392/3 requires an output capacitor of 1 µF or greater to maintain stability. The design is optimized for use with low-ESR ceramic chip capacitors. High-ESR capacitors may cause high frequency oscillation. The output capacitor can be increased, but performance has been optimized for a 1 µF ceramic output capacitor and does not improve significantly with larger capacitance.

X7R/X5R dielectric-type ceramic capacitors are recommended because of their temperature performance. X7R type capacitors change capacitance by 15% over their operating temperature range and are the most stable type of ceramic capacitors. Z5U and Y5V dielectric capacitors change value by as much as 50% and 60%, respectively, over their operating temperature ranges. To use a ceramic chip capacitor with Y5V dielectric, the value must be much higher than an X7R ceramic capacitor to ensure the same minimum capacitance over the equivalent operating temperature range.

4.3 No-Load Stability

Unlike many other voltage regulators, the MIC5392/3 will remain stable and in regulation with no load. This is especially important in CMOS RAM to keep applications alive.

4.4 Enable/Shutdown

The MIC5392/3 comes with two active-high enable pins that allow each regulator to be disabled independently. Forcing the enable pin low disables the regulator and sends it into a “zero” off-mode current state. In this state, current consumed by the regulator goes nearly to zero. When disabled the MIC5393 switches a 25Ω (typical) load on the regulator output to discharge the external capacitor.

Forcing the enable pin high enables the output voltage. The active-high enable pin uses CMOS technology and the enable pin cannot be left floating; a floating enable pin may cause an indeterminate state on the output.

4.5 Thermal Considerations

The MIC5392/3 is designed to provide 150 mA of continuous current for both outputs in a very small package. Maximum ambient operating temperature can be calculated based on the output current and the voltage drop across the part. For example if the input voltage is 3.6V, the output voltage is 3.0V for V_{OUT1}, 1.8V for V_{OUT2} and the output current = 150 mA. The actual power dissipation of the regulator circuit can be determined using Equation 4-1:

EQUATION 4-1:

$$P_D = (V_{IN} - V_{OUT})I_{OUT1} + (V_{IN} - V_{OUT2})I_{OUT2} + V_{IN} \times I_{GND}$$

Because this device is CMOS and the ground current is typically <100 µA over the load range, the power dissipation contributed by the ground current is <1% and can be ignored for the calculation in Equation 4-2:

EQUATION 4-2:

$$P_D = (3.6V - 3.0V)150mA + (3.6V - 1.8V)150mA$$

$$P_D = 0.36W$$

To determine the maximum ambient operating temperature of the package, use the junction-to-ambient thermal resistance of the device and the following basic formula in Equation 4-3:

EQUATION 4-3:

$$P_{D(MAX)} = \left(\frac{T_{J(MAX)} - T_A}{\theta_{JA}}\right)$$

Where:

$T_{J(MAX)}$ =	125°C
θ_{JA} =	173°C/W

Substituting P_D for $P_{D(MAX)}$ and solving for the ambient operating temperature will give the maximum operating conditions for the regulator circuit. The junction-to-ambient thermal resistance for the minimum footprint is 173°C/W.

The maximum power dissipation must not be exceeded for proper operation.

For example, when operating the MIC5392-PGYMX at an input voltage of 3.6V and 150 mA loads at each output with a minimum footprint layout, the maximum ambient operating temperature T_A can be determined in Equation 4-4:

EQUATION 4-4:

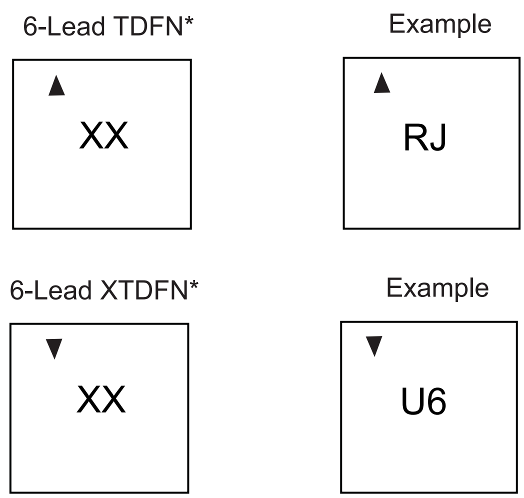
$$0.36W = (125°C - T_A)/(173°C/\mathrm{W})$$

$$T_A = 63°C$$

Therefore, a 2.8V/1.8V application with 150 mA at each output current can accept an ambient operating temperature of 58°C in a 1.2 mm × 1.2 mm TDFN package. For a full discussion of heat sinking and thermal effects of voltage regulators, refer to the "Regulator Thermals" section of Designing with Low-Dropout Voltage Regulators handbook.

5.0 PACKAGING INFORMATION

5.1 Package Marking Information



Legend:	XX...X	Product code or customer-specific information
	Y	Year code (last digit of calendar year)
	YY	Year code (last 2 digits of calendar year)
	WW	Week code (week of January 1 is week '01')
	NNN	Alphanumeric traceability code
	(e3)	Pb-free JEDEC® designator for Matte Tin (Sn)
	*	This package is Pb-free. The Pb-free JEDEC designator ((e3)) can be found on the outer packaging for this package.
	●, ▲, ▼	Pin one index is identified by a dot, delta up, or delta down (triangle mark).

Note: In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for customer-specific information. Package may or may not include the corporate logo.

Underbar (_) and/or Overbar (‾) symbol may not be to scale.

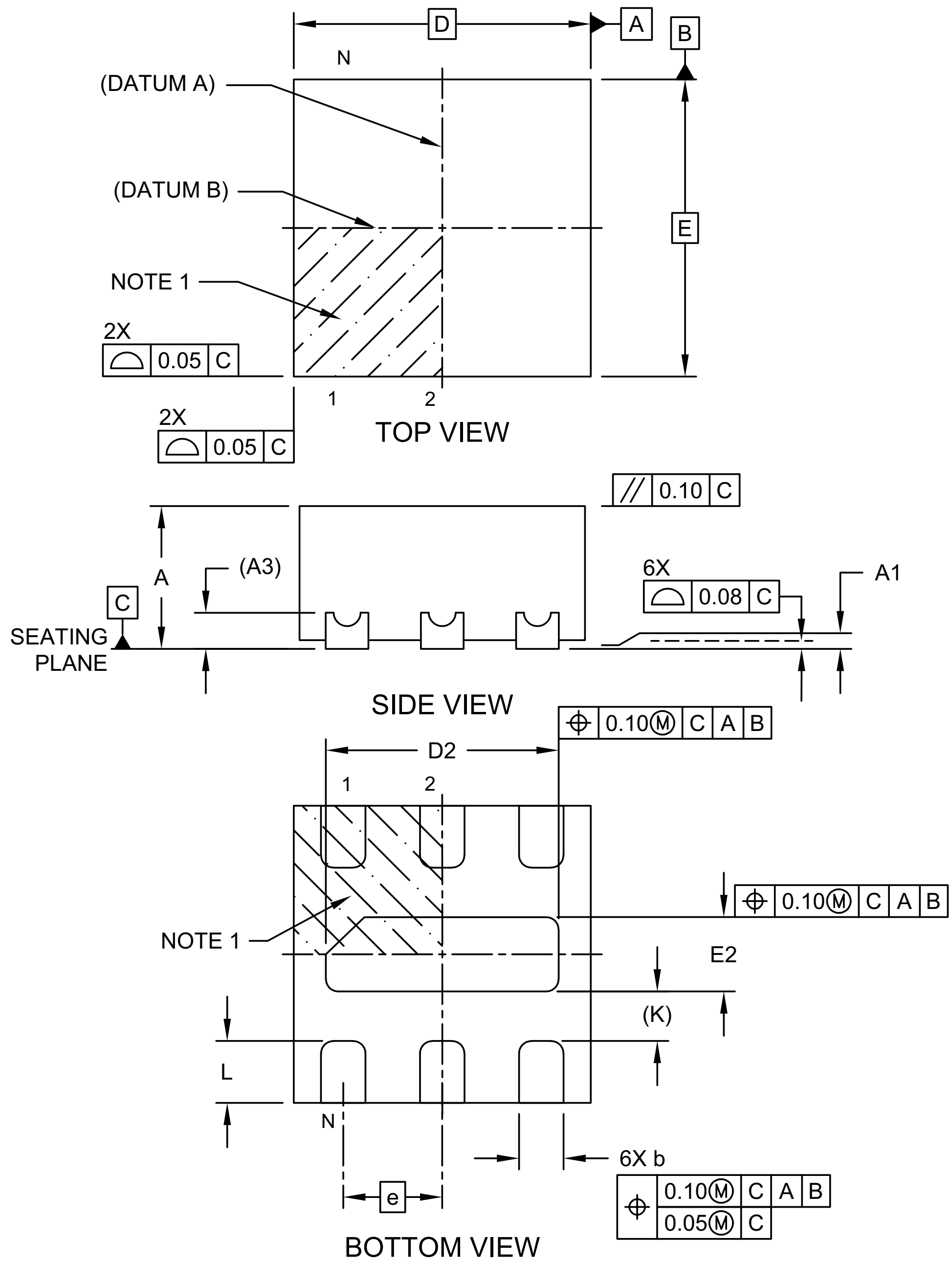
Note: If the full seven-character YYWWNNN code cannot fit on the package, the following truncated codes are used based on the available marking space:
6 Characters = YWWNNN; 5 Characters = WWNNN; 4 Characters = WNNN; 3 Characters = NNN;
2 Characters = NN; 1 Character = N

TABLE 5-1: PACKAGE MARKING CODES FOR MIC5392/93

Part Number	Output Voltage	Marking Codes
MIC5392-4CYMT	1.2V/1.0V	RJ
MIC5392-MFYMT	2.8V/1.5V	RP
MIC5392-MGYMT	2.8V/1.8V	RD
MIC5392-PMYMT	3.2V/2.8V	RM
MIC5392-SSYMT	3.3V/3.3V	RL
MIC5393-FMYMT	1.5V/2.8V	UP
MIC5393-GMYMT	1.8V/2.8V	UT
MIC5393-PPYMT	3.3V/3.3V	UL
MIC5393-SGYMT	3.3V/1.8V	UB
MIC5393-SSYMT	3.3V/3.3V	UR
MIC5393-FMYMX	1.5V/2.8V	U6
MIC5393-GMYMX	1.8V/2.8V	U7
MIC5393-MMYMX	2.8V/2.8V	UV
MIC5393-PGYMX	3.0V/1.8V	US
MIC5393-PPYMX	3.3V/3.3V	U3
MIC5393-SGYMX	3.3V/1.8V	U2
MIC5393-SSYMX	3.3V/3.3V	U4

6-Lead Ultra Thin Plastic Dual Flat, No Lead (HHA) - 1.2x1.2x0.6 mm Body [UDFN] With 0.94x0.30 mm Exposed Pad

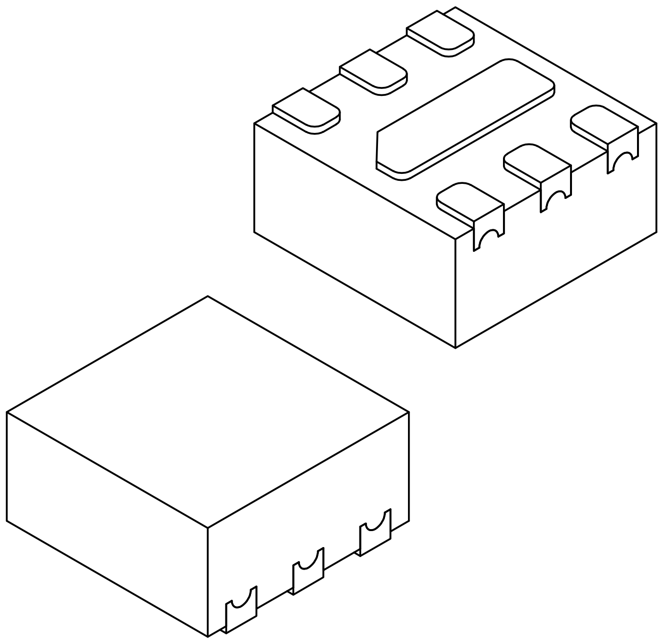
Note:	For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



Microchip Technology Drawing C04-1151 Rev A Sheet 1 of 2

6-Lead Ultra Thin Plastic Dual Flat, No Lead (HHA) - 1.2x1.2x0.6 mm Body [UDFN] With 0.94x0.30 mm Exposed Pad

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



Units		MILLIMETERS		
Dimension Limits		MIN	NOM	MAX
Number of Terminals	N		6	
Pitch	e		0.40 BSC	
Overall Height	A	0.45	0.55	0.60
Standoff	A1	0.00	0.018	0.037
Terminal Thickness	A3		0.15 REF	
Overall Length	D		1.20 BSC	
Exposed Pad Length	D2	0.89	0.94	0.99
Overall Width	E		1.20 BSC	
Exposed Pad Width	E2	0.25	0.30	0.35
Terminal Width	b	0.13	0.18	0.23
Terminal Length	L	0.20	0.25	0.30
Terminal-to-Exposed-Pad	K		0.20 REF	

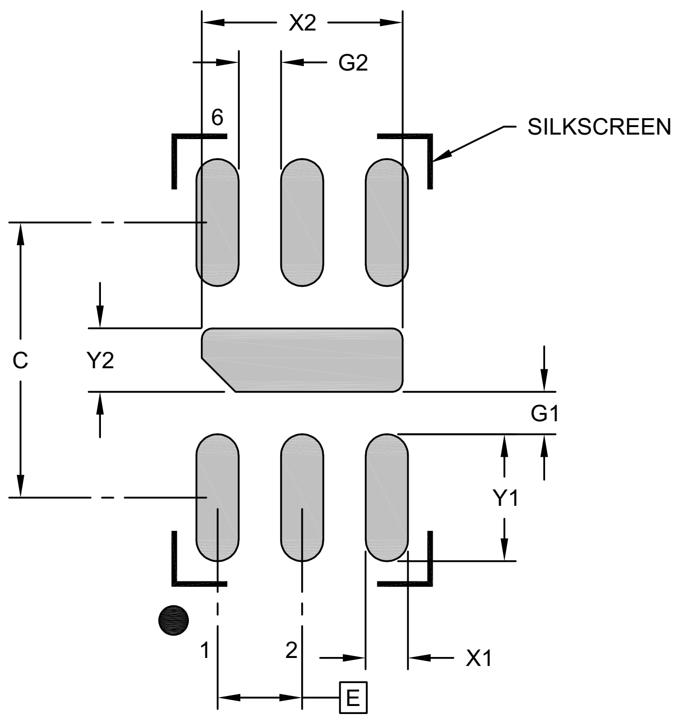
Notes:

1. Pin 1 visual index feature may vary, but must be located within the hatched area.
2. Package is saw singulated
3. Dimensioning and tolerancing per ASME Y14.5M
   BSC: Basic Dimension. Theoretically exact value shown without tolerances.
   REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1151 Rev A Sheet 2 of 2

6-Lead Ultra Thin Plastic Dual Flat, No Lead (HHA) - 1.2x1.2x0.6 mm Body [UDFN] With 0.94x0.30 mm Exposed Pad

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



RECOMMENDED LAND PATTERN

	Units	MILLIMETERS		
Dimension Limits		MIN	NOM	MAX
Contact Pitch	E		0.40 BSC	
Center Pad Width	X2			0.95
Center Pad Length	Y2			0.30
Contact Pad Spacing	C		1.30	
Contact Pad Width (X6)	X1			0.20
Contact Pad Length (X6)	Y1			0.60
Contact Pad to Center Pad (X6)	G1	0.20		
Contact Pad to Contact Pad (X4)	G2	0.20		

Notes:

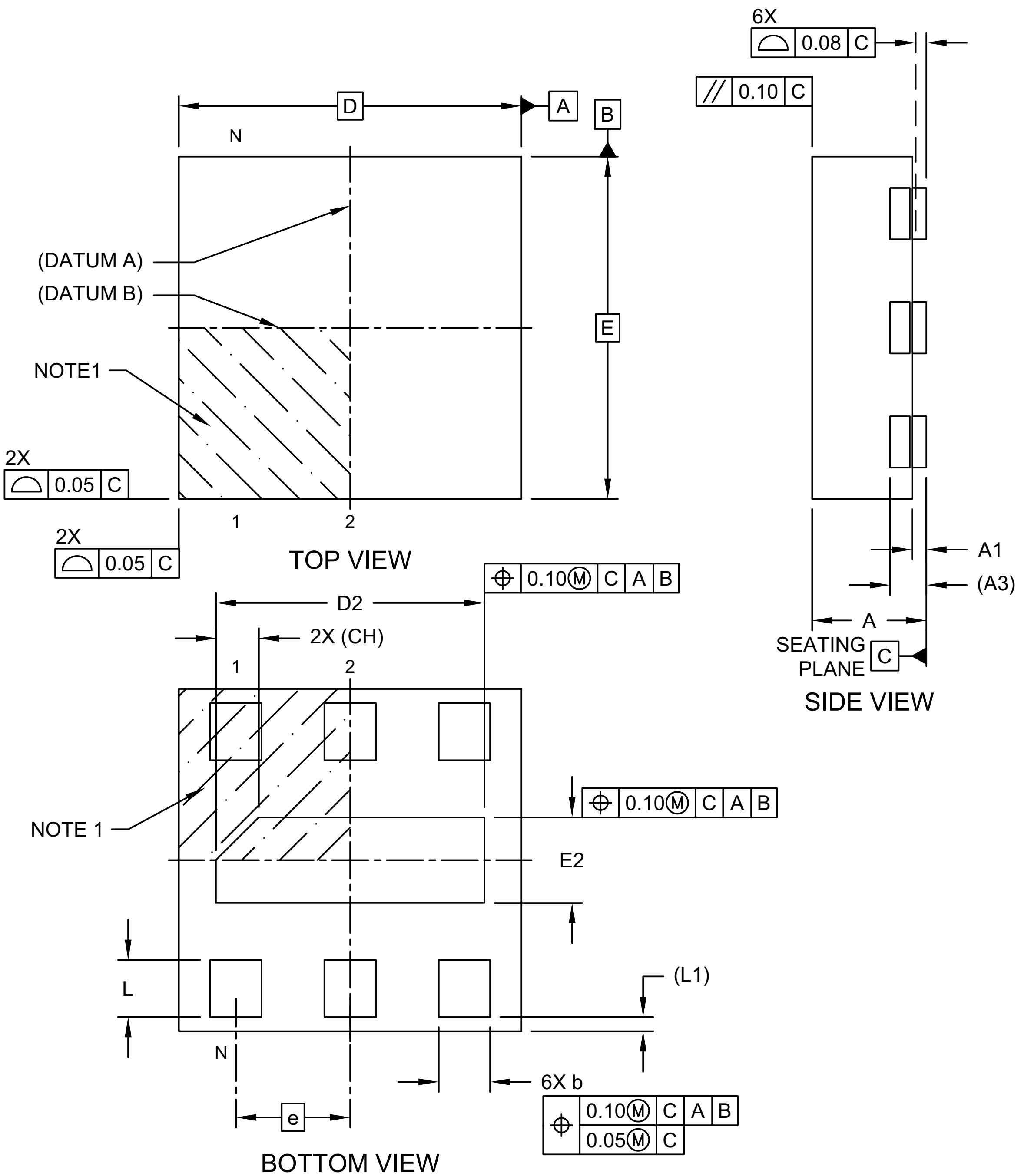
1. Dimensioning and tolerancing per ASME Y14.5M

   BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-3151 Rev A

6-Lead Super Thin Plastic Dual Flat, No Lead Package (K6A) - 1.2x1.2x0.4 mm Body [X2DFN]; Micrel Legacy XTDFN1212-06L

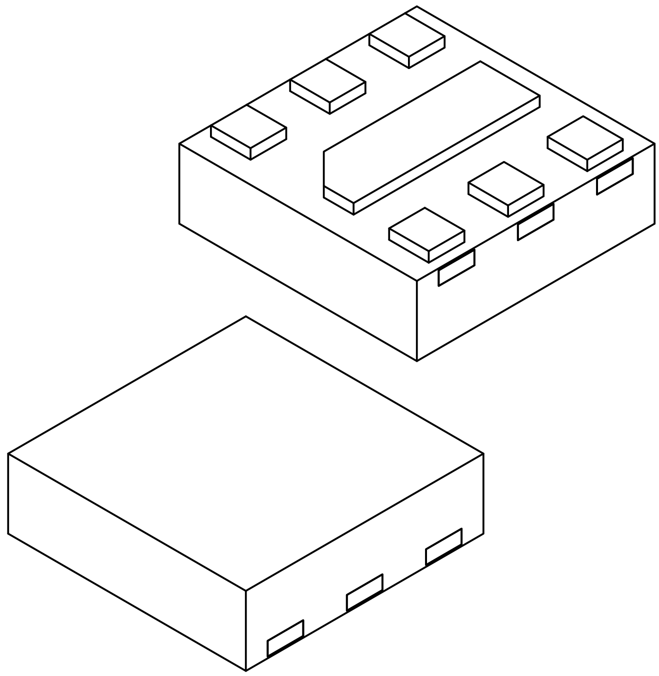
Note:	For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



Microchip Technology Drawing C04-1295 Rev A Sheet 1 of 2

6-Lead Super Thin Plastic Dual Flat, No Lead Package (K6A) - 1.2x1.2x0.4 mm Body [X2DFN]; Micrel Legacy XTDFN1212-06L

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



Units		MILLIMETERS		
Dimension Limits		MIN	NOM	MAX
Number of Terminals	N	006		
Pitch	e	0.40 BSC		
Overall Height	A	–	–	0.40
Standoff	A1	0.00	0.02	0.05
Terminal Thickness	A3	0.127 REF		
Overall Length	D	1.20 BSC		
Exposed Pad Length	D2	0.89	0.94	0.99
Overall Width	E	1.20 BSC		
Exposed Pad Width	E2	0.25	0.30	0.35
Exposed Pad Index Chamfer	CH	0.15 REF		
Terminal Width	b	0.13	0.18	0.23
Terminal Length	L	0.15	0.20	0.25
Terminal Pullback	L1	0.05 REF		

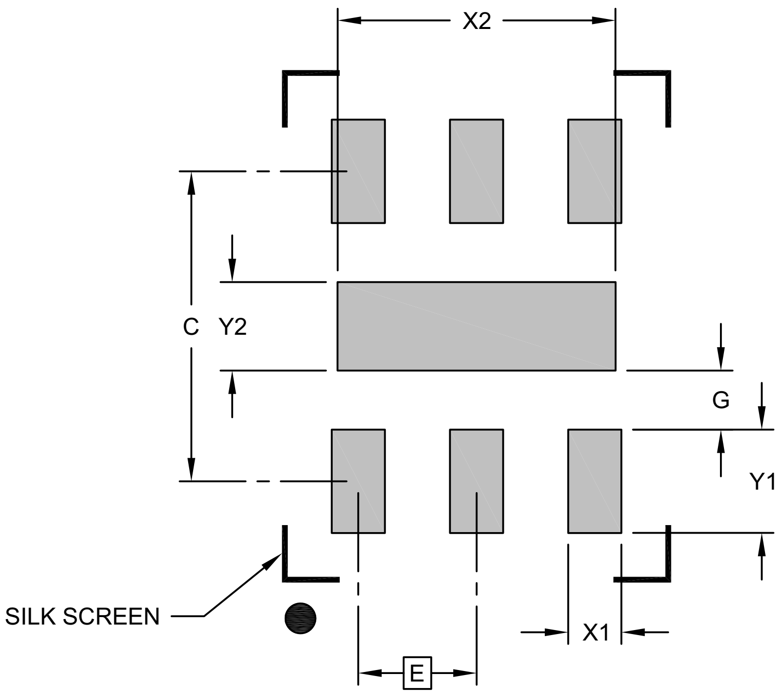
Notes:

1. Pin 1 visual index feature may vary, but must be located within the hatched area.
2. Package is saw singulated
3. Dimensioning and tolerancing per ASME Y14.5M
   BSC: Basic Dimension. Theoretically exact value shown without tolerances.
   REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-1295 Rev A Sheet 2 of 2

6-Lead Super Thin Plastic Dual Flat, No Lead Package (K6A) - 1.2x1.2x0.4 mm Body [X2DFN]; Micrel Legacy XTDFN1212-06L

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



RECOMMENDED LAND PATTERN

Units		MILLIMETERS		
Dimension Limits		MIN	NOM	MAX
Contact Pitch	E		0.40 BSC	
Center Pad Width	X2			0.94
Center Pad Length	Y2			0.30
Contact Pad Spacing	C		1.05	
Contact Pad Width (Xnn)	X1			0.18
Contact Pad Length (Xnn)	Y1			0.35
Contact Pad to Center Pad (Xnn)	G	0.20		

Notes:

1. Dimensioning and tolerancing per ASME Y14.5M
   BSC: Basic Dimension. Theoretically exact value shown without tolerances.
2. For best soldering results, thermal vias, if used, should be filled or tented to avoid solder loss during reflow process

Microchip Technology Drawing C04-3295 Rev A

APPENDIX A: REVISION HISTORY

Revision A (July 2023)

- Converted Micrel document MIC5392/3 to Microchip data sheet DS20006225A.
- Minor text changes throughout.

NOTES:

PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

PART NO.	-XX	X	XX	-XX
Device	Voltage Option	Junction Temperature Range	Package	Media Type

Device:	MIC5392: High-Performance Dual 150 mA LDO MIC5393: High-Performance Dual 150 mA LDO with Output Discharge Circuit
Voltage Option	4C = 1.2V/1.0V (MIC5392) MF = 2.8V/1.5V (MIC5392) MG = 2.8V/1.8V (MIC5392) PM = 3.0V/2.8V (MIC5392) SS = 3.3V/3.3V (MIC5392/3) PG = 3.0/1.8V (MIC5393) PP = 3.0/V3.0V (MIC5393) SG = 3.3V/1.8V (MIC5393) FM = 1.5V/2.8V (MIC5393) MM = 2.8V/2.8V (MIC5393)
Junction Temperature Range:	Y = –40°C to +125°C (RoHS Compliant)
Package:	MT = 6-Lead 1.2 mm x 1.2 mm UDFN (Pb-Free) MX = 6-Lead 1.2 mm x 1.2 mm X2DFN (Pb-Free)
Media Type:	T5 = 500/Reel TR = 5,000/Reel

Examples:

a) MIC5392-4CYMT-T5	High-Performance Dual 150 mA LDO, 1.2V/1.0V, –40°C to +125°C, 6-Lead 1.2 mm x 1.2 mm TDFN, 500/Reel
b) MIC5392-4CYMT-TR	High-Performance Dual 150 mA LDO, 1.2V/1.0V, –40°C to +125°C, 6-Lead 1.2 mm x 1.2 mm TDFN, 5,000/Reel
c) MIC5392-SSYMT-T5	High-Performance Dual 150 mA LDO, 3.3V/3.3V, –40°C to +125°C, 6-Lead 1.2 mm x 1.2 mm TDFN, 500/Reel
d) MIC5393-SSYMT-TR	High-Performance Dual 150 mA LDO with Output Discharge Circuit, 3.3V/3.3V, –40°C to +125°C, 6-Lead 1.2 mm x 1.2 mm TDFN, 5,000/Reel
e) MIC5393-PGYMX-T5	High-Performance Dual 150 mA LDO with Output Discharge Circuit, 3.0V/1.8V, –40°C to +125°C, 6-Lead 1.2 mm x 1.2 mm XTDFN, 500/Reel
e) MIC5393-PGYMX-TR	High-Performance Dual 150 mA LDO with Output Discharge Circuit, 3.0V/1.8V, –40°C to +125°C, 6-Lead 1.2 mm x 1.2 mm XTDFN, 5,000/Reel

Note 1: Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

NOTES:

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