MIC2546/7

Dual Programmable Current-Limit Switch

Features

- 2.7V to 5.5V input
- Adjustable current-limit up to 1.5A
- Reverse current flow blocking (no “body diode”)
- 100 µA typical on-state supply current per channel
- 2 µA typical off-state supply current
- 120 mΩ maximum on-resistance
- Open-drain fault flag
- Thermal shutdown
- Thermal shutdown output latch (MIC2547)
- 2 ms (slow) turn-on and fast turnoff
- Available with active-high or active-low enable

Applications

- USB power distribution
- PCI Bus Power Switching
- Notebook PC
- ACPI power distribution
- PC card hot swap applications
- Inrush current-limiting
- Ideal for dual supply applications

General Description

The MIC2546 and MIC2547 are integrated high-side dual power switches optimized for low loss DC power switching and other power management applications, including Advanced Configuration and Power Interface (ACPI). The MIC2546/47 is a cost-effective, highly integrated solution that requires few external components to satisfy USB and ACPI requirements.

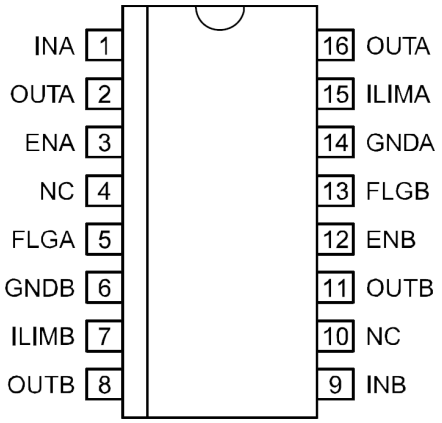
Load current management features include a precision resistor-programmable output current-limit and a soft-start circuit which minimizes inrush current when the switch is enabled. Thermal shutdown, along with current-limit, protects the switch and the attached device.

The MIC2546/47’s open-drain flag outputs are used to indicate current-limiting or thermal shutdown to a local controller. The MIC2547 has an additional internal latch which turns the output off upon thermal shutdown providing robust fault control. The enable signal is compatible with both 3V and 5V logic, and is also used as the thermal shutdown latch reset for the MIC2547.

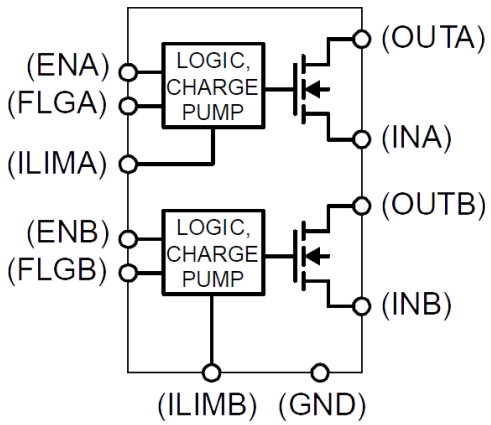
The MIC2546 and MIC2547 are available in active-high and active-low enable versions in 16-lead TSSOP and SOIC packages.

Package Types

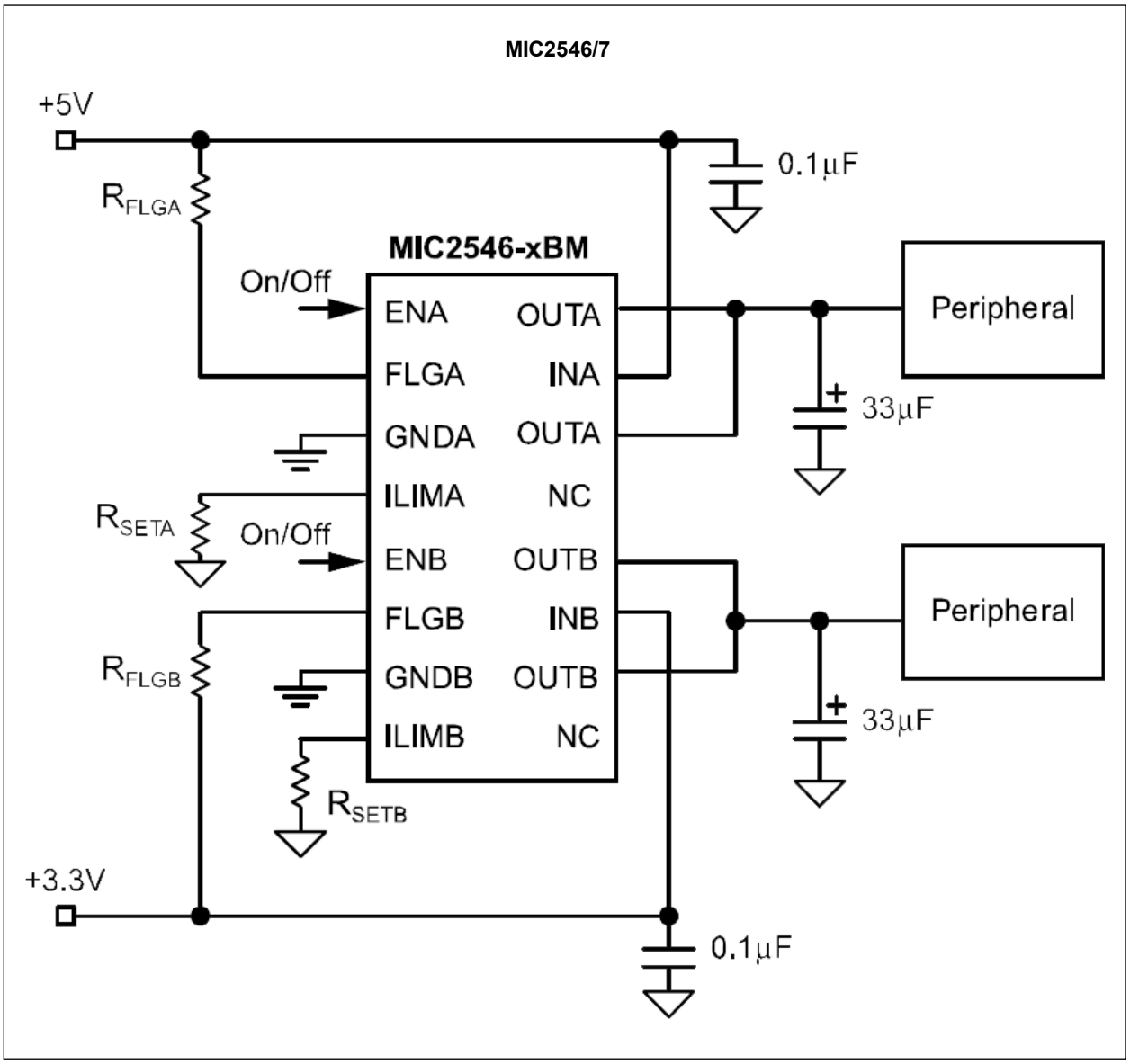
MIC2546/7
16-Lead SOIC (M), 16-Lead TSSOP (TS)



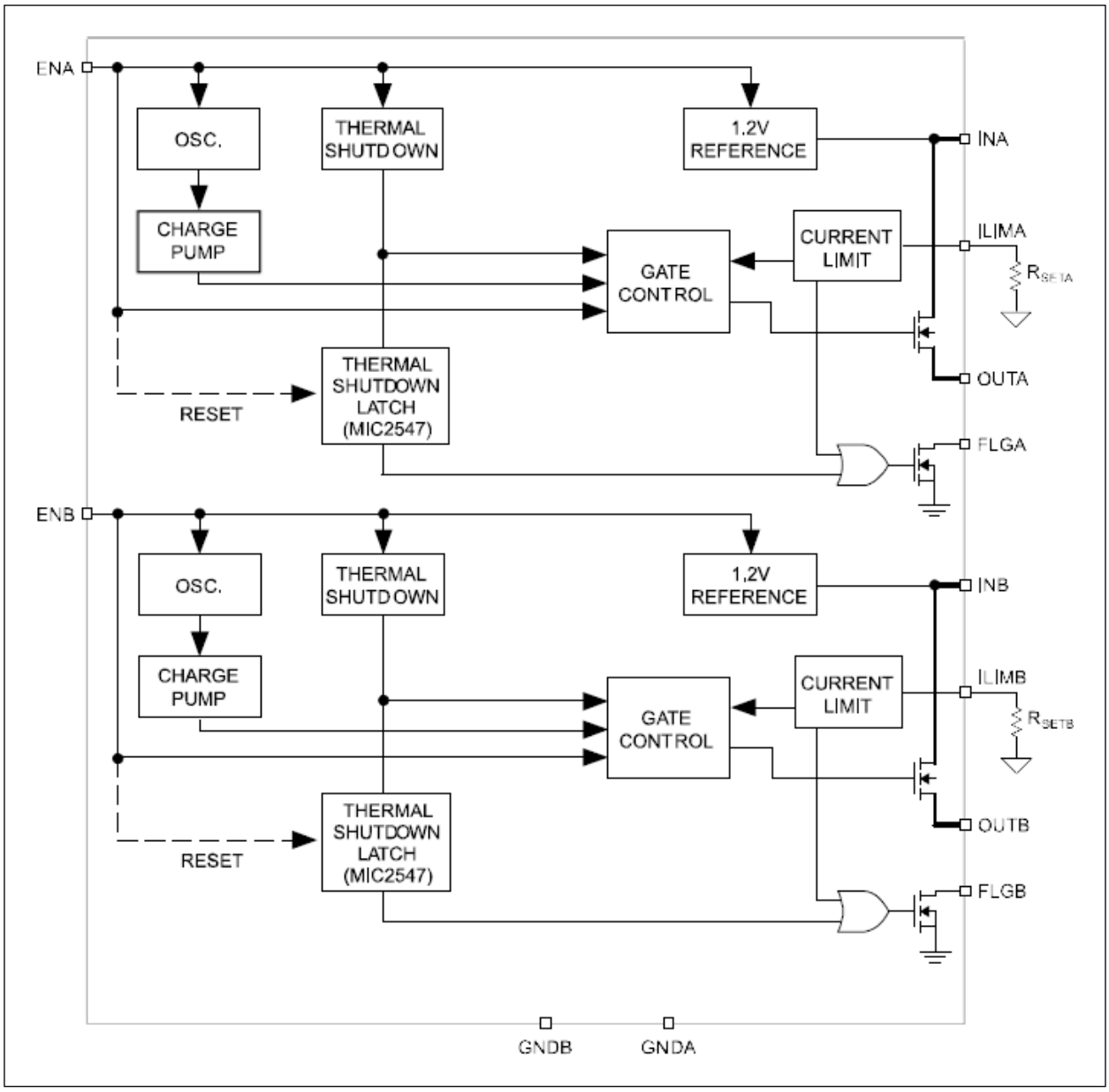
MIC2546/7
Function Pinout



Typical Application Circuits



Functional Block Diagram



1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

Supply Voltage (V_{IN}).....+6.0V
Output Voltage (V_{OUT}).....+6.0V
Output Current (I_{OUT}).....Internally Limited
Enable Input (V_{EN}).....−0.3V to V_{IN} +0.3V
Fault Flag Voltage (V_{FLG}).....+6.0V
Fault Flag Current (I_{FLG}).....50 mA
ESD Rating (Note 1).....2 kV

Operating Ratings ‡

Supply Voltage (V_{IN}).....+2.7V to +5.5V
Current-Limit Set Range.....0.1A to 1.5A

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

ELECTRICAL CHARACTERISTICS

V_{IN} = +5V, and T_A = 25°C, but **bold** values indicate –40°C to +85°C, unless noted. (Note 1))

Parameters	Sym.	Min.	Typ.	Max.	Units	Conditions
Supply Current	I_{VIN}	—	1.5	**10**	µA	Switch off, OUT = Open (Note 1)
		—	200	**320**	µA	Switch on, OUT = Open (Note 1)
Enable Input Voltage	V_{EN}	**2.4**	1.7	—	V	Enable high (Note 1)
		—	1.5	**0.8**	V	Enable low (Note 1)
Enable Input Current	I_{EN}	—	0.01	1	µA	V_{EN} = $V_{OH(MIN)}$ = 2.4V
		—	0.01	1	µA	V_{EN} = $V_{OH(MAX)}$ = 0.8V
Enable Input Capacitance	C_{EN}	—	1	—	pF	Note 2
Switch Resistance	$R_{DS(ON)}$	—	80	**120**	mΩ	I_{OUT} = 500 mA
Current-Limit Factor	CLF	184	230	276	V	I_{LIMIT} = 500 mA to 1.5A, V_{OUT} = 1.0V to 4.0V (Note 3)
Output Leakage Current	OUT_{LEAK}	—	1	**10**	µA	Switch off
Output Turn-on Delay	t_{ON}	1	2	5	ms	R_L = 10Ω, C_L = 1 µF **(see Figure 3-1 and Figure 3-2)**
Output Turn-on Rise Time	t_R	1	2	5	ms	R_L = 10Ω, C_L = 1 µF **(see Figure 3-1 and Figure 3-2)**

Note 1: Off is ≤ 0.8V and on is ≥ 2.4V for the MIC2546-1 and MIC2547-1. Off is ≥ 2.4V and on is ≤ 0.8V for the MIC2546-2 and MIC2546-2. The enable input has about 200 mV of hysteresis.

2: Guaranteed by design, but not production tested.

3: Current limit threshold is determined by: I_{LIMIT} = 230V / R_{SET}, where R_{SET} is in ohms.

ELECTRICAL CHARACTERISTICS (CONTINUED)

V_{IN} = +5V, and T_A = 25°C, but **bold** values indicate –40°C to +85°C, unless noted. (Note 1))

Parameters	Sym.	Min.	Typ.	Max.	Units	Conditions
Output Turn-off Delay	t_{OFF}	—	22	—	µs	R_L = 10Ω, C_L = 1 µF **(see Figure 3-1 and Figure 3-2)**
Output Turn-off Fall Time	t_F	—	21	—	µs	R_L = 10Ω, C_L = 1 µF **(see Figure 3-1 and Figure 3-2)**
Overtemperature Threshold Shutdown	T_J	—	140	—	°C	T_J increasing
		—	130	—	°C	T_J decreasing
Error Flag Output Resistance		—	4	**15**	Ω	V_{IN} = 5V, I_L = 5 µA
		—	5	**20**	Ω	V_{IN} = 3.3V, I_L = 5 µA
Error Flag Off Current	I_{FLAG}	—	0.01	**1**	µA	V_{FLG} = 5V
EN Pulse Reset Width	t_{RST}	5	—	—	µs	MIC2547 thermal-shutdown latch (Note 2)
VIN to EN Set-up	t_{SET}	0	—	—	µs	MIC2547 (Note 2)
Current-limit Response Time	t_{CL}	—	25	—	µs	V_{OUT} = 0V to I_{OUT} = 2A, I_{SET} = 1A (Note 2)
Error Flag Output Resistance	R_{FLAG}	—	4	—	Ω	I_{FLG} = 10 mA

Note 1: Off is ≤ 0.8V and on is ≥ 2.4V for the MIC2546-1 and MIC2547-1. Off is ≥ 2.4V and on is ≤ 0.8V for the MIC2546-2 and MIC2546-2. The enable input has about 200 mV of hysteresis.

2: Guaranteed by design, but not production tested.

3: Current limit threshold is determined by: I_{LIMIT} = 230V / R_{SET}, where R_{SET} is in ohms.

TEMPERATURE SPECIFICATIONS

Parameters	Sym.	Min.	Typ.	Max.	Units	Conditions
Junction Temperature Range	T_J	—	—	—	°C	Internally limited
Ambient Temperature Range	T_A	–40	—	+85	°C	—
Storage Temperature Range	T_s	–65	—	+150	°C	—
Lead Temperature	—	—	+260	—	°C	Soldering, 5 seconds
Package Thermal Resistance						
16-Lead SOIC	θ_{JA}	—	+120	—	°C/W	—
16-Lead TSSOP	θ_{JA}	—	+100	—	°C/W	—

2.0 TEST CIRCUIT

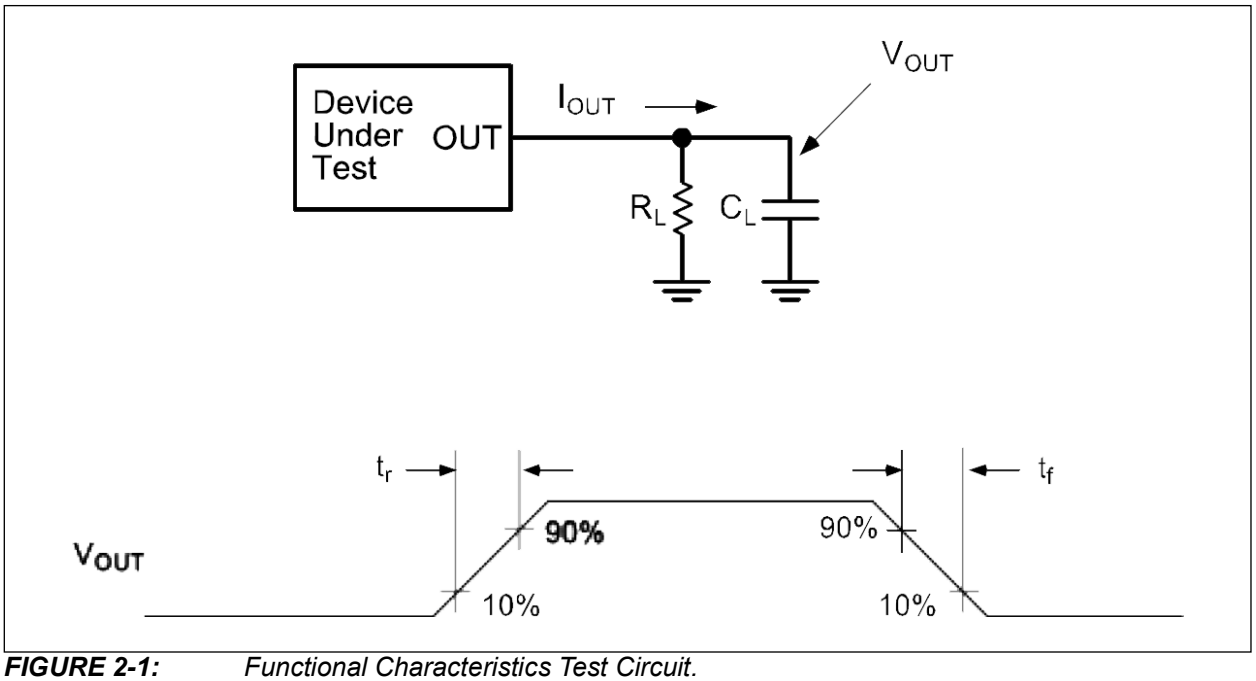


FIGURE 2-1: *Functional Characteristics Test Circuit.*

3.0 TIMING DIAGRAMS

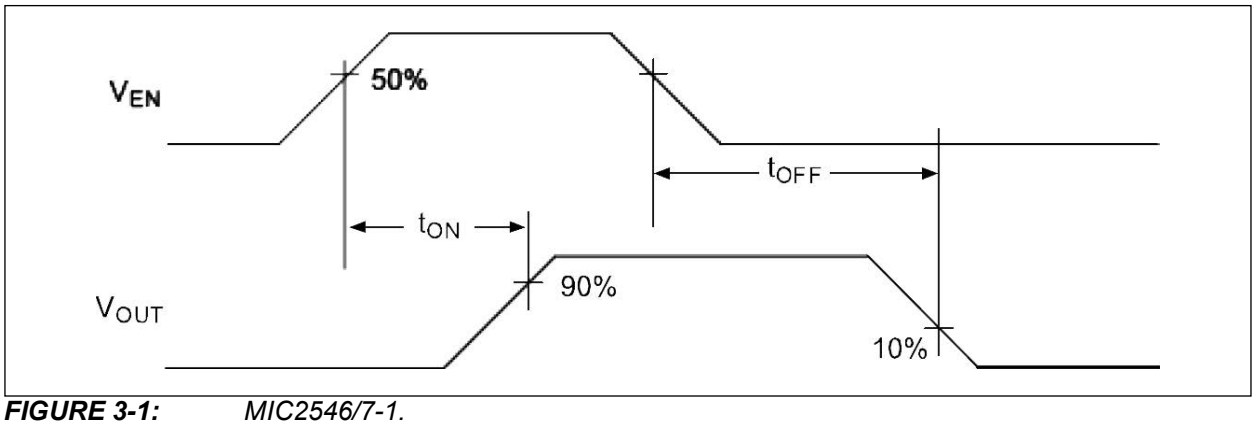


FIGURE 3-1: *MIC2546/7-1.*

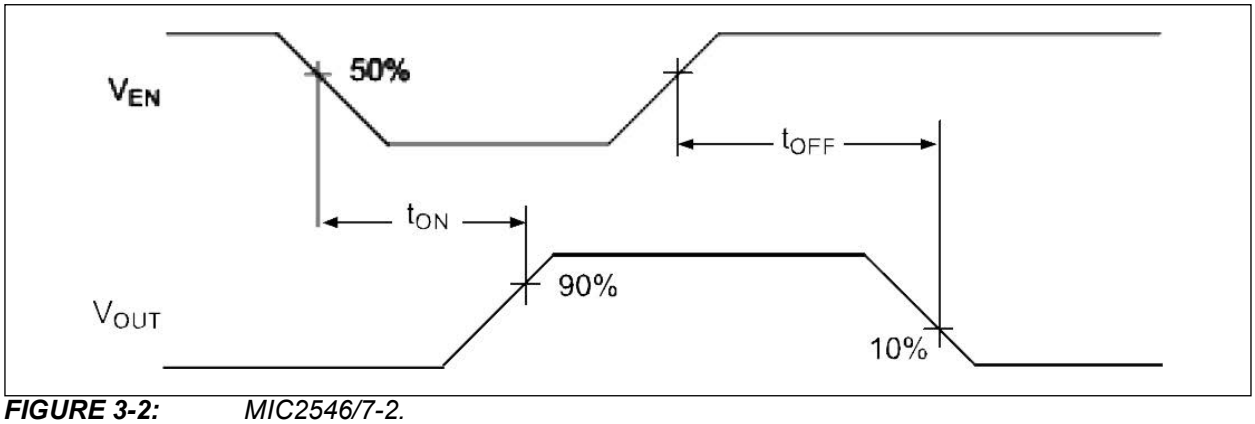


FIGURE 3-2: *MIC2546/7-2.*

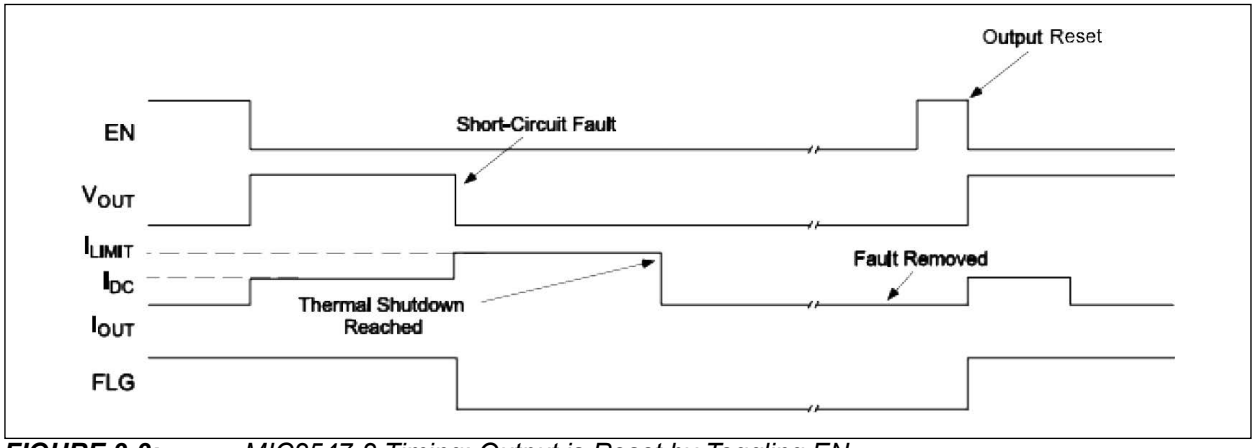


FIGURE 3-3: *MIC2547-2 Timing: Output is Reset by Toggling EN.*

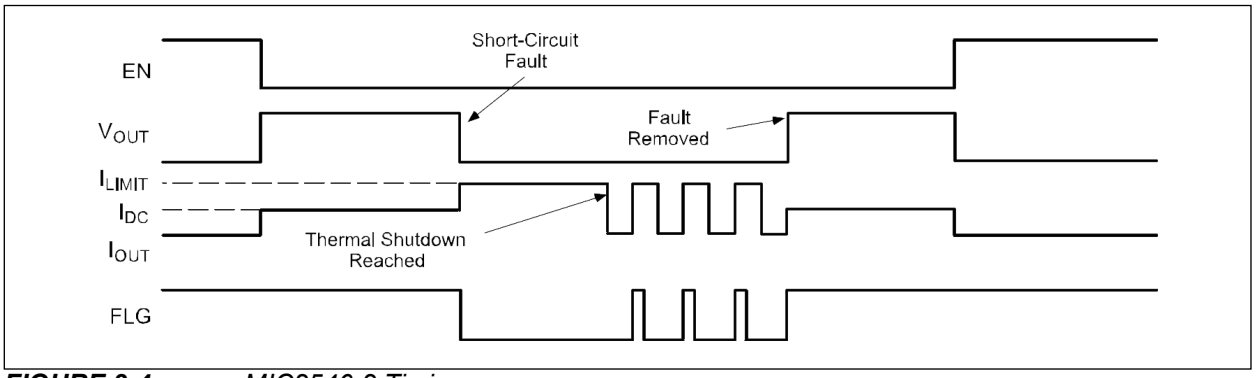


FIGURE 3-4: *MIC2546-2 Timing.*

4.0 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.

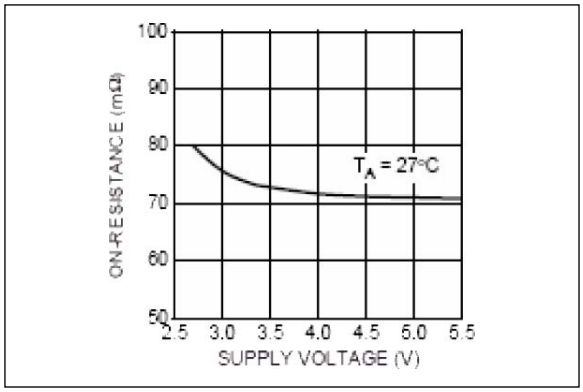


FIGURE 4-1: *Output On-resistance vs. Supply Voltage.*

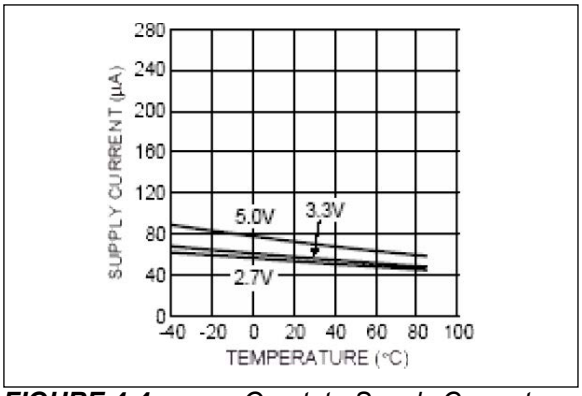


FIGURE 4-4: *On-state Supply Current vs. Temperature.*

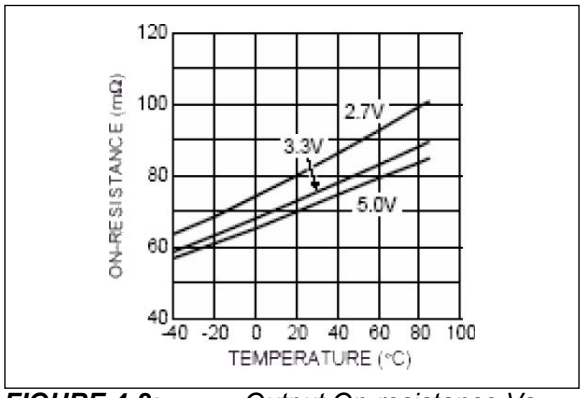


FIGURE 4-2: *Output On-resistance Vs. Temperature.*

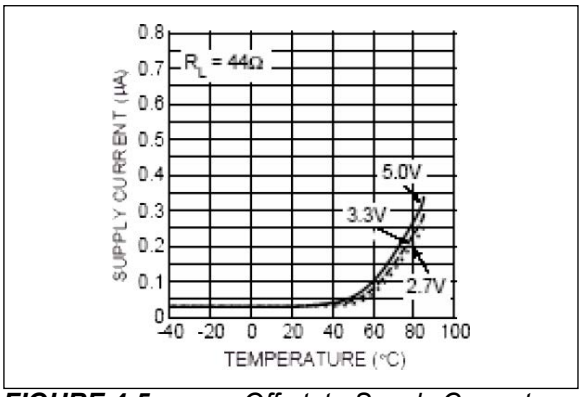


FIGURE 4-5: *Off-state Supply Current vs. Temperature.*

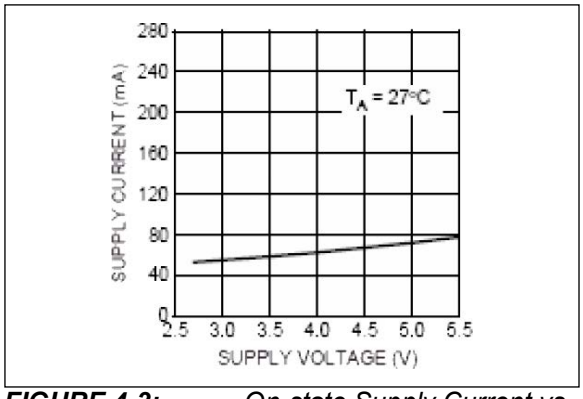


FIGURE 4-3: *On-state Supply Current vs. Supply Voltage.*

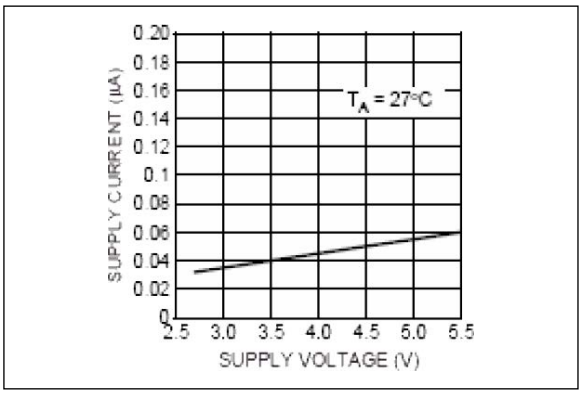


FIGURE 4-6: *Off-State Supply Current vs. Supply Voltage.*

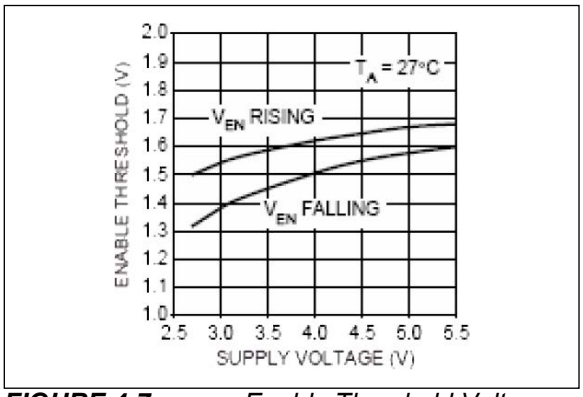


FIGURE 4-7: *Enable Threshold Voltage vs. Supply Voltage.*

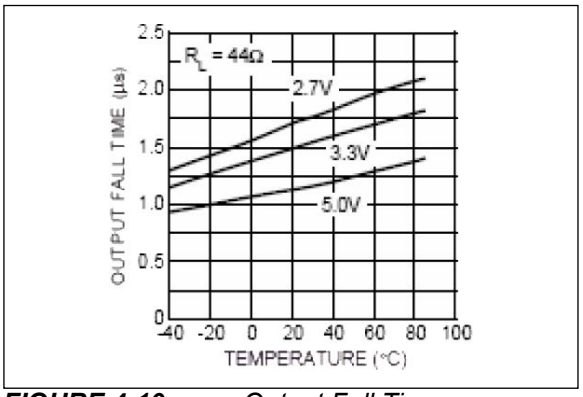


FIGURE 4-10: *Output Fall Time vs. Temperature.*

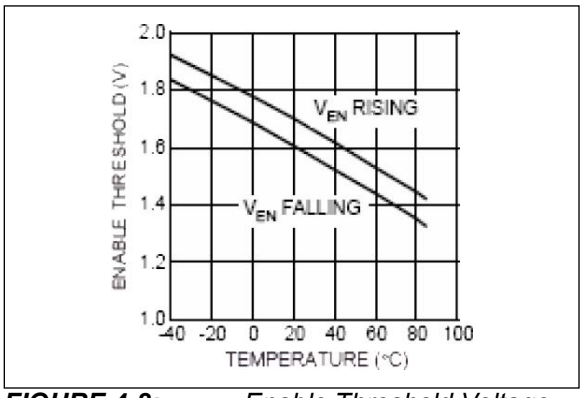


FIGURE 4-8: *Enable Threshold Voltage vs. Temperature.*

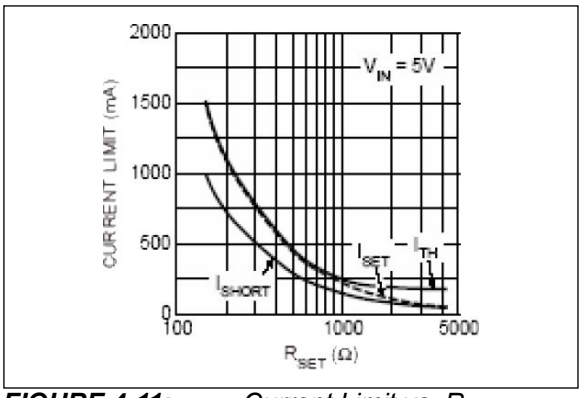


FIGURE 4-11: *Current Limit vs. R_{SET}.*

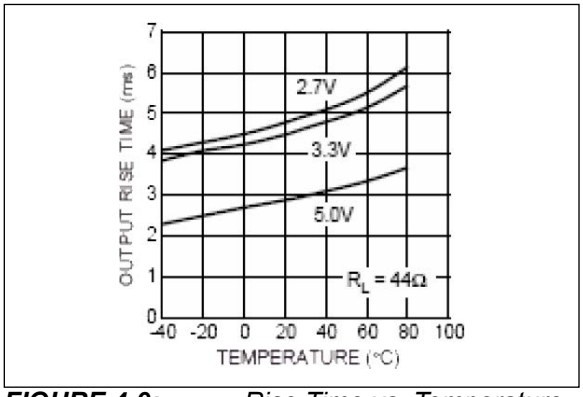


FIGURE 4-9: *Rise Time vs. Temperature.*

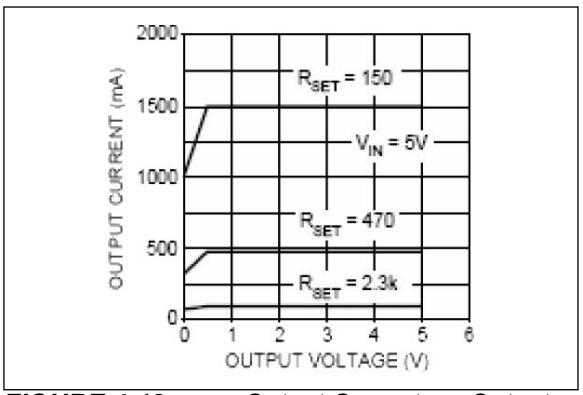


FIGURE 4-12: *Output Current vs. Output Voltage.*

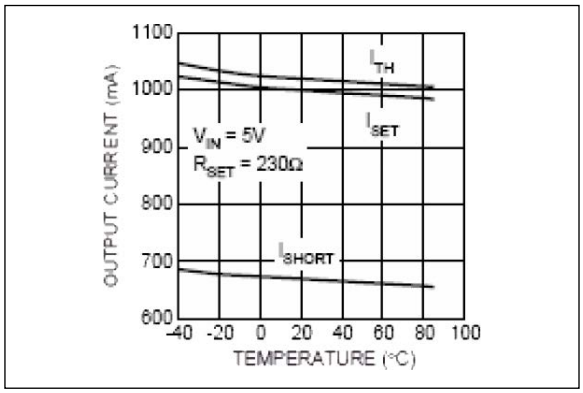


FIGURE 4-13: *Current Limit vs. Temperature.*

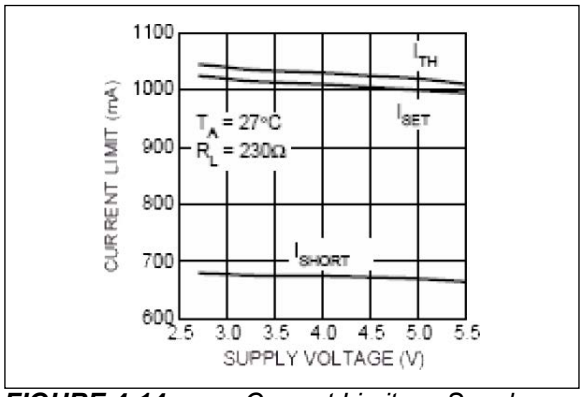


FIGURE 4-14: *Current Limit vs. Supply Voltage.*

5.0 TYPICAL FUNCTIONAL CHARACTERISTICS

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.

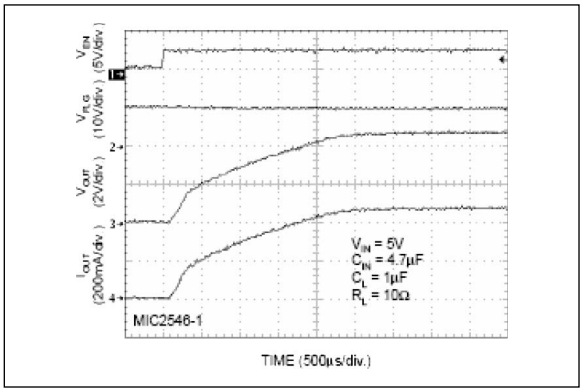


FIGURE 5-1: *Turn-on Response.*

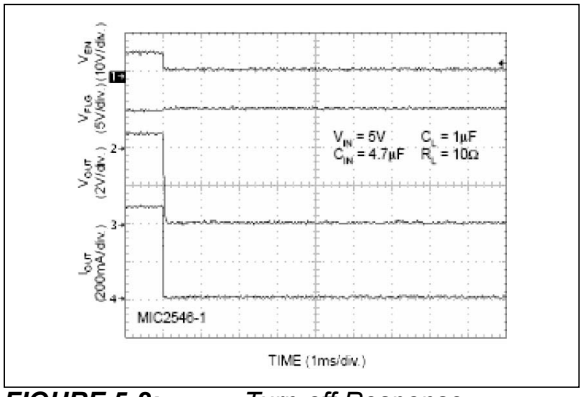


FIGURE 5-2: *Turn-off Response.*

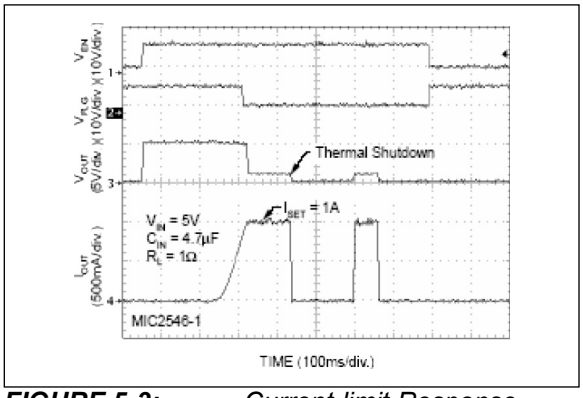


FIGURE 5-3: *Current-limit Response.*

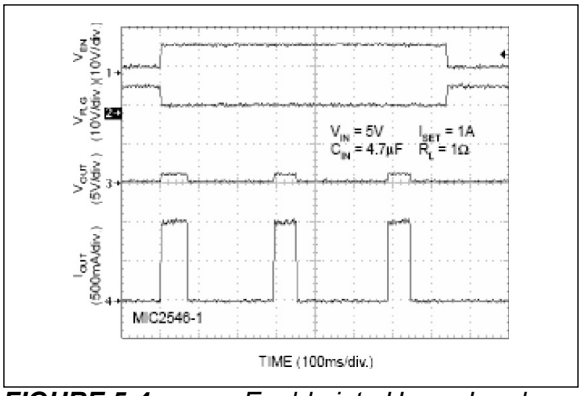


FIGURE 5-4: *Enable into Heavy Load.*

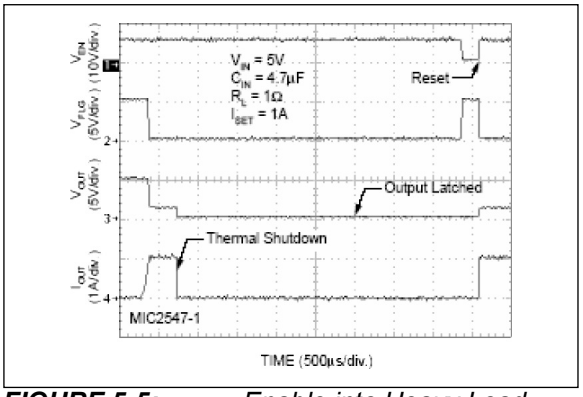


FIGURE 5-5: *Enable into Heavy Load.*

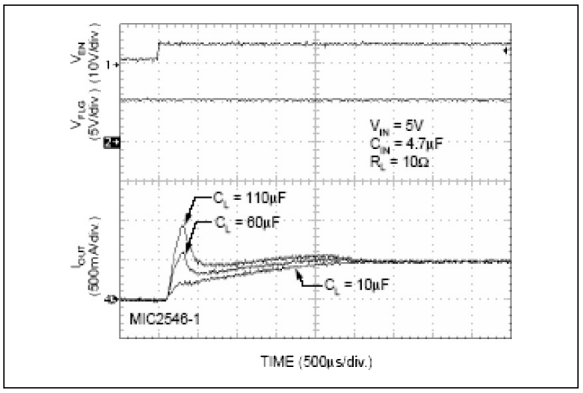


FIGURE 5-6: *Inrush Current Response.*

6.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 6-1.

TABLE 6-1: PIN FUNCTION TABLE

Pin Number	Pin Name	Description
1	INA	Input A: Output A MOSFET drain. Also supplies internal circuitry.
2, 16	OUTA	Switch A (Output): Output A MOSFET source. Pins 2 and 16 must be externally connected.
3	ENA	Enable A (Input): Logic-compatible enable input. Active to active low (–2). High input >1.7V typical; low input <1.5V typical. MIC2547 only: Also resets thermal shutdown latch.
4, 10	NC	Not internally connected.
5	FLGA	Fault Flag A (Output): Active-low, open-drain output. Indicates overcurrent or thermal shutdown conditions. MIC2547 only: latched low on thermal shutdown.
6, 14	GNDB, GNDA	Ground. Both pins must be connected to GND.
7	ILIMB	Current Limit Channel B: Sets current-limit threshold using an resistor, RSET, connected to ground. 154Ω < RSET < 2.29kΩ.
8, 11	OUTB	Switch B (Output): Pins 8 and 11 must be externally connected.
9	INB	Input B
12	ENB	Enable B (Input)
13	FLGB	Fault Flag B (Output)
15	ILIMA	Fault Flag B (Output)

7.0 FUNCTIONAL DESCRIPTION

The MIC2546 and MIC2547 are dual high-side N-channel switches available with active-high or active-low enable inputs. Fault conditions turn off or inhibit turn-on of the output transistor and activate the open-drain error flag transistor making it sink current to ground.

7.1 Input and Output

INX is the power supply connection to the logic circuitry and the drain of the output MOSFET. OUTX is the source of the output MOSFET. In a typical circuit, current flows from INX to OUTX toward the load. If V_{OUT} is greater than V_{IN}, current will flow from OUTX to INX since the switch is bidirectional when enabled. The output MOSFET and driver circuitry are also designed to allow the MOSFET source to be externally forced to a higher voltage than the drain ($V_{OUT} > V_{IN}$) when the switch is disabled. In this situation, the MIC2546/7 avoids undesirable current flow from OUTX to INX. Both OUT pins for a given channel must be connected together.

7.2 Thermal Shutdown

Thermal shutdown shuts off the output MOSFET and signals the fault flag if the die temperature exceeds 140°C. 10°C of hysteresis prevents the switch from turning on until the die temperature drops to 130°C. Overtemperature detection functions only when the switch is enabled.

The MIC2547 features an internal latch which causes the part to remain off after thermal shutdown until a reset pulse is provided via the enable pin. While in current limit, the thermal shutdown latch prevents on/off cycling of the output. Refer to Figure 3-3 and Figure 3-4 for timing diagrams. The flag remains low until reset.

7.3 Enable Input

ENX must be driven logic high or logic low, or be pulled high or low for a clearly defined input. Floating the input may cause unpredictable operation. ENX should not be allowed to go negative with respect to GND, and V_{ENX} should be less than or equal to V_{INX}.

7.4 Adjustable Current-Limit

The short-circuit current-limit is user-adjustable with an external set resistor. Current-limit in the range of 100 mA to 1.5A is available with a set point accuracy of better than ±20%. The current-limit circuit prevents damage to the output MOSFET and external load.

The nominal current-limit value is set with an external resistor between ILIMX and GND. For a desired current-limit, the value of the external set resistor is given by:

EQUATION 7-1:

$$R_{SETX} = \frac{230V}{I_{LIMITX}}$$

Where 154Ω < R_{SET} < 2.29 kΩ

For example, to set a 1A nominal current-limit, R_{SET} is calculated as:.

EXAMPLE 7-1:

$$\frac{230V}{1A} = 230\Omega$$

Current through R_{SETX} increases with OUT current. The voltage across R_{SETX} could be monitored with a high impedance comparator to provide an indication of output current. R_{SETX} should be between 154Ω and 2.29 kΩ (0.5% resistor value).

7.5 Short-Circuit Protection

In the event of a short-circuit, the output current will fold back to approximately 80% of the short-circuit current limit.

7.6 Fault Flag

FLGX is an N-channel, open-drain MOSFET output. The fault-flag is active (low) for current-limit or thermal shutdown conditions. The flag output MOSFET is capable of sinking a 10 mA load to typically 100 mV above ground.

8.0 APPLICATION INFORMATION

8.1 Supply Filtering

A 0.1 µF to 1 µF bypass capacitor from INX to GND, located near the MIC2546 and MIC2547, is strongly recommended to control supply transients. Without a bypass capacitor, an output short may cause sufficient ringing on the input (from supply lead inductance) to damage internal control circuitry.

Input transients must not exceed the absolute maximum supply voltage ($V_{IN(MAX)}$ = 6V) even for a short duration.

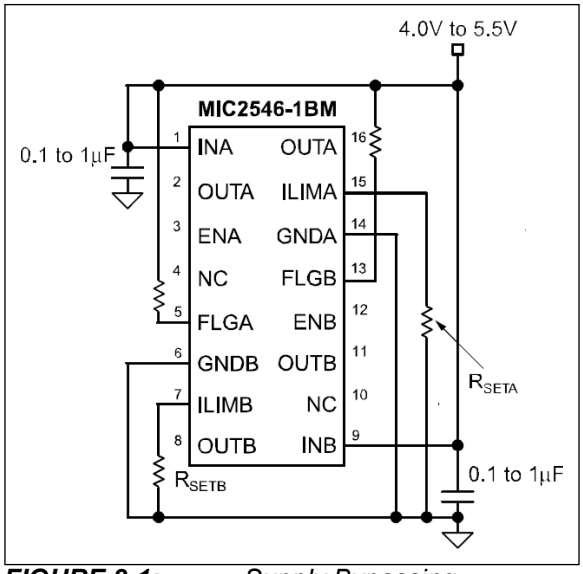


FIGURE 8-1: *Supply Bypassing.*

8.2 Power Dissipation

The device's junction temperature depends on several factors such as the load, PCB layout, ambient temperature and package type. Equations that can be used to calculate power dissipation and junction temperature are found below.

Calculation of power dissipation can be accomplished by the following equation:

EQUATION 8-1:

$$P_D = R_{DS(ON)} \times (I_{OUT})^2$$

To relate this to junction temperature, Equation 8-2 can be used:

EQUATION 8-2:

$$T_J = P_D \times \theta_{JA} + T_A$$

Where:

T_J	Junction temperature
T_A	Ambient temperature
θ_{JA}	The thermal resistance of the package

8.3 Transient Overcurrent Filter

The inrush current from the connection of a heavy capacitive load may cause the fault flag to fall for 10 µs to 200 µs while the switch is in a constant-current mode, charging the capacitance.

Adding an optional series resistor-capacitor (R_{SET2}) in parallel with R_{SET}, as shown in Figure 8-2, allows the transient current-limit to be set to a different value than steady state. A typical USB hot-plug inrush is 2A to 3A for 10 µs to 20 µs. If R_{SET} is 435Ω (510 mA), an R_{SET2} of 88Ω (2.5A) and C_{SET} of µF (RC = 100 µs) allows transient surge of 3A to pass for 100 µs without tripping the overcurrent flag (FLG).

8.4 USB Power Distribution

The MIC2546 is ideal for meeting USB power distribution requirements. Figure 8-2 depicts a USB Host application. R_{SET} should be set to a value providing a current-limit >500 mA. The accurate current-limit of the MIC2546 will reduce power supply current requirements. Also, fast reaction to short circuit faults prevent voltage droop in mobile PC applications.

8.5 Printed Circuit Board Hot-Plug

The MIC2546/47 are ideal inrush current-limiters suitable for hot-plug applications. Due to the integrated charge pump, the MIC2546/47 presents a high impedance when off and slowly becomes a low impedance as it turns on. This “soft start” feature effectively isolates power supplies from highly capacitive loads by reducing inrush current during hot-plug events.

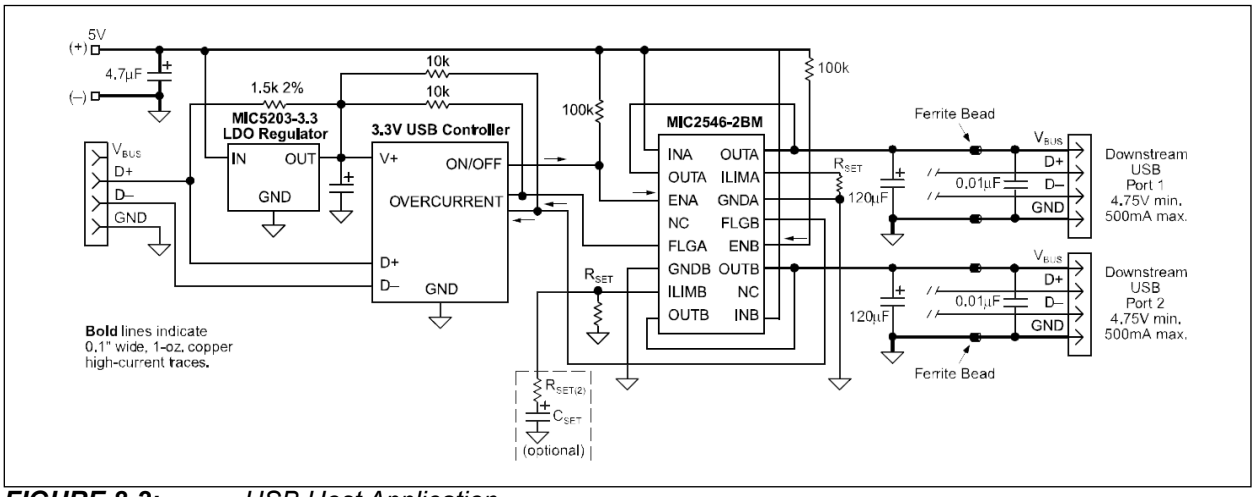
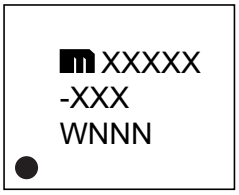


FIGURE 8-2: *USB Host Application.*

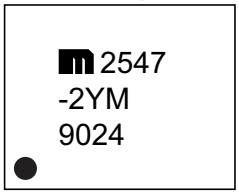
9.0 PACKAGING INFORMATION

9.1 Package Marking Information

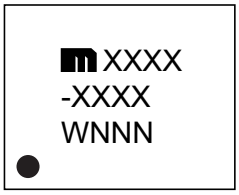
16-Lead SOIC*



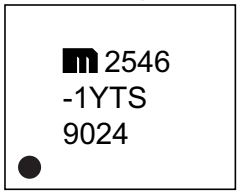
Example



16-Lead TSSOP*



Example



PACKAGE MARKING DRAWING SYMBOLS LEGEND

Symbol	Definition
XX . . . X	Product code or customer-specific information. (Note 1, Note 2)
YYWW	Date code, where YY is the last 2 digits of calendar year and WW is the work week (i.e., week of January 1 is week 01). (Note 3)
M	Month of assembly (if applicable). January is represented by “A” and each month thereafter follows the order of the alphabet through “L” for December.
NNN	Alphanumeric traceability code. (Note 3, Note 4)
(e3)	Pb-free JEDEC designator for Matte Tin (Sn).
*	Indicates this package is Pb-free. The Pb-free JEDEC designator (the symbol in the row above this one) 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 1: If the full Microchip part number cannot fit on one line, it will be carried over to the next line, limiting the number of available characters for customer-specific information. The package may or may not include the corporate logo.

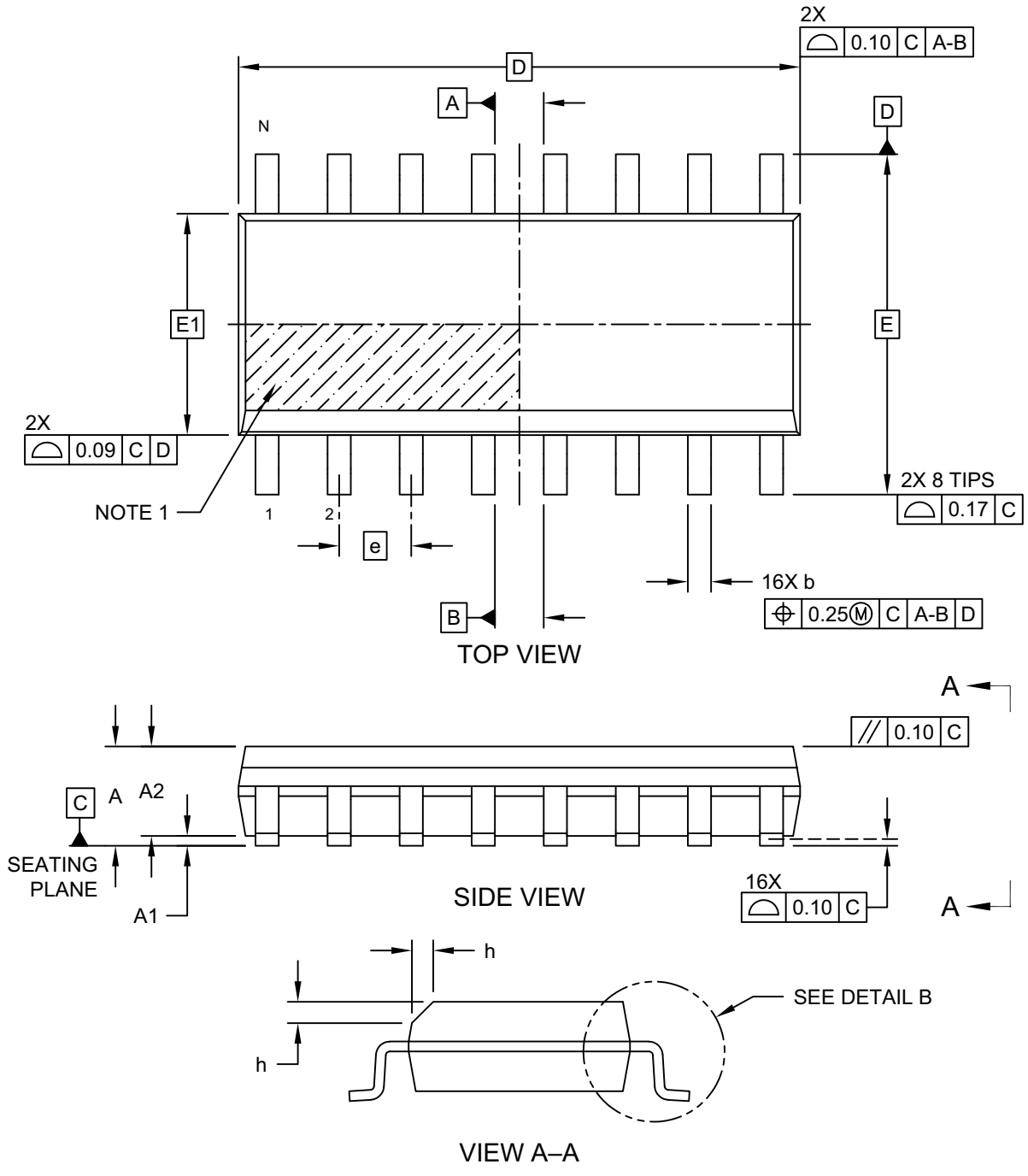
2: Any underbar (_) and/or overbar (¯) symbols shown in a package marking drawing may not be to scale.

3: If the full date code (YYWW) and the alphanumeric traceability code (NNN)—usually marked together on the last or only line of a package marking as the seven-character YYWWNNN—cannot fit on the package together, the codes will be truncated based on the number of available character spaces, as follows: 6 characters = YWWNNN; 5 characters = WWNNN; 4 characters = WNNN; 3 characters = NNN; 2 characters = NN; 1 character = N.

4: Some products might have a “Y” symbol at the end of the last or only line in a package marking, usually at the end of the alphanumeric traceability code (NNN or truncated versions), to indicate the product is Pb-free.

16-Lead 3.9 mm SOIC [D7X] Package Outline and Recommended Land Pattern

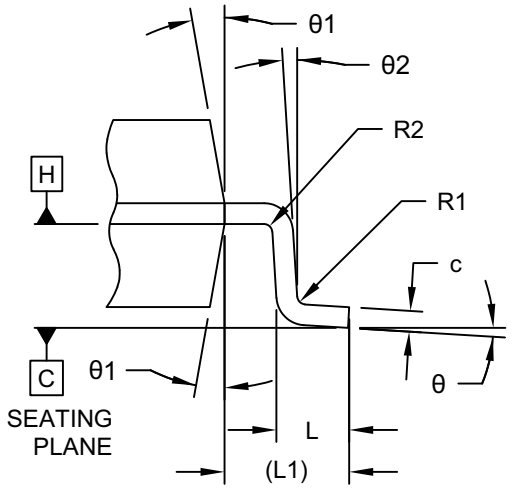
Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



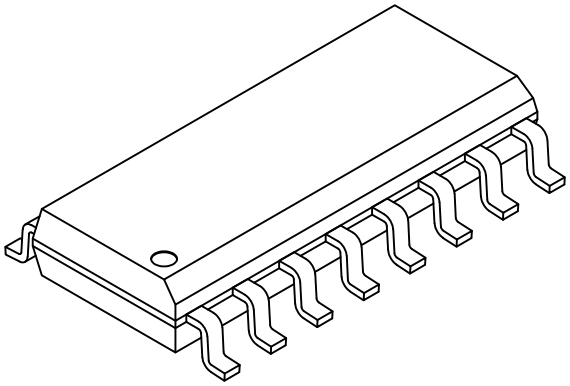
Microchip Technology Drawing C04-108-D7X Rev E Sheet 1 of 2

16-Lead 3.9 mm SOIC [D7X] Package Outline and Recommended Land Pattern

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



DETAIL B



Units		MILLIMETERS		
Dimension Limits		MIN	NOM	MAX
Number of Terminals	N		16	
Pitch	e		1.27 BSC	
Overall Height	A	-	-	1.75
Standoff §	A1	0.10	-	0.25
Molded Package Thickness	A2	1.25	-	–
Overall Length	D		9.90 BSC	
Overall Width	E		6.00 BSC	
Molded Package Width	E1		3.90 BSC	
Terminal Width	b	0.31	-	0.51
Terminal Thickness	c	0.10	-	0.25
Corner Chamfer	h	0.25	-	0.50
Terminal Length	L	0.40	-	1.27
Footprint	L1		1.04 REF	
Lead Bend Radius	R1	0.07	-	-
Lead Bend Radius	R2	0.07	-	-
Foot Angle	θ	0°	-	8°
Mold Draft Angle	θ1	0°	-	15°
Lead Angle	θ2	0°	-	-

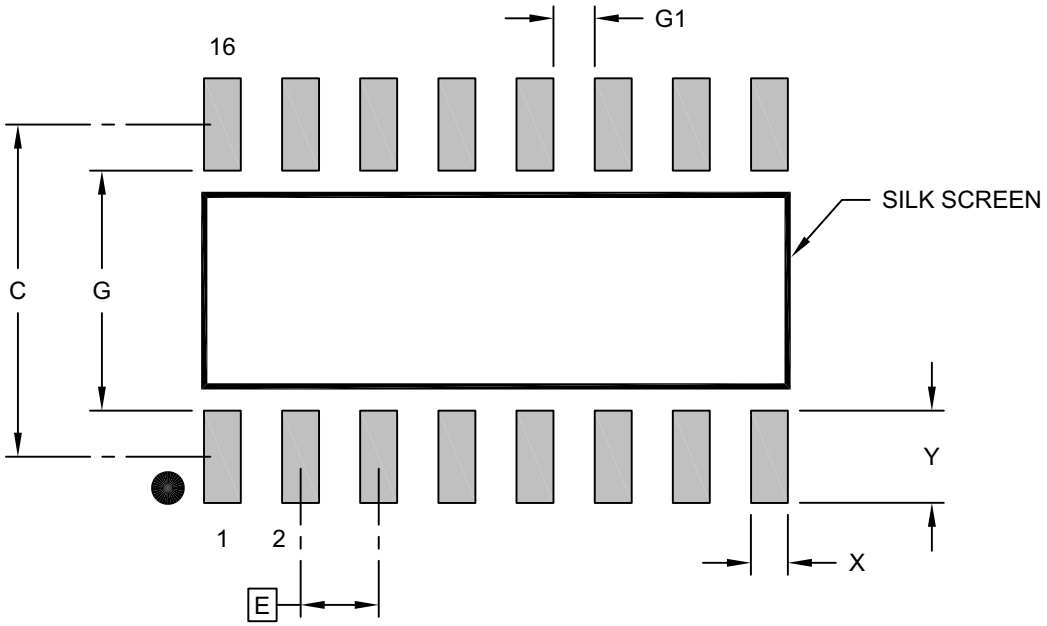
Notes:

1. Pin 1 visual index feature may vary, but must be located within the hatched area.
2. § Significant Characteristic
3. Dimension D does not include mold flash, protrusions or gate burrs, which shall not exceed 0.15 mm per end. Dimension E1 does not include interlead flash or protrusion, which shall not exceed 0.25 mm per side.
4. 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.
5. Datums A & B to be determined at Datum H.

Microchip Technology Drawing C04-108-D7X Rev E Sheet 2 of 2

16-Lead 3.9 mm SOIC [D7X] Package Outline and Recommended Land Pattern

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	1.27 BSC		
Contact Pad Spacing	C		5.40	
Contact Pad Width (X16)	X			0.60
Contact Pad Length (X16)	Y			1.50
Contact Pad to Contact Pad (X8)	G	3.90		
Contact Pad to Contact Pad (X14)	G1	0.67		

Notes:

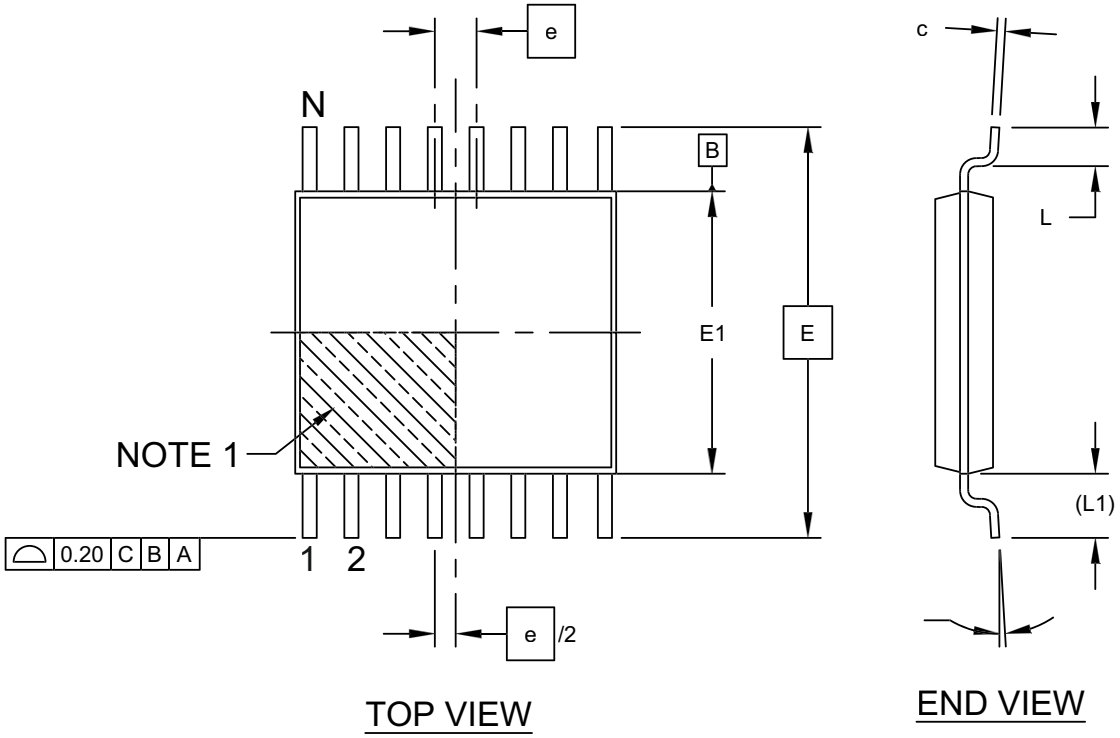
1. Dimensioning and tolerancing per ASME Y14.5M

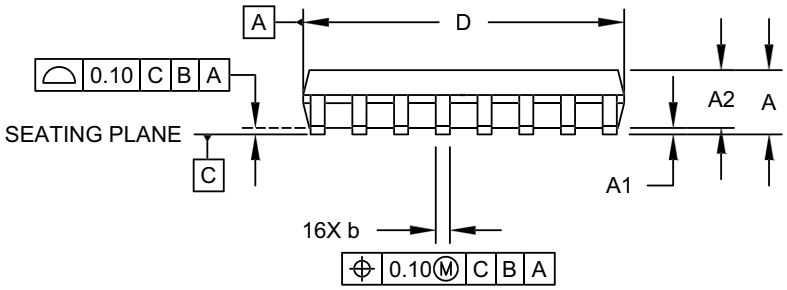
   BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-2108-D7X Rev E

16-Lead 4.4 mm TSSOP [D8X] Package Outline and Recommended Land Pattern

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

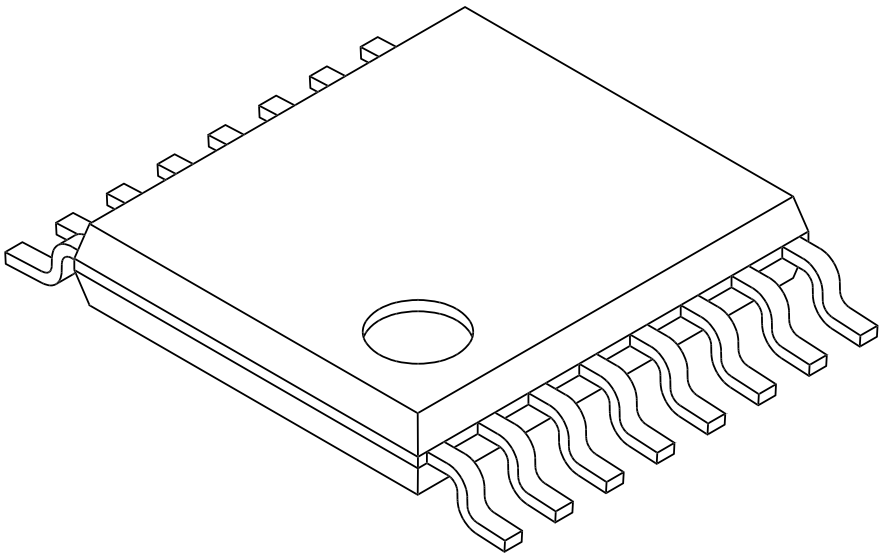




Microchip Technology Drawing C04-00068 Rev B Sheet 1 of 2

16-Lead 4.4 mm TSSOP [D8X] Package Outline and Recommended Land Pattern

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 Pins	N		16	
Pitch	e		0.65 BSC	
Overall Height	A	-	-	1.20
Molded Package Thickness	A2	0.80	1.00	1.05
Standoff	A1	0.05	-	0.15
Overall Width	E		6.40 BSC	
Molded Package Width	E1	4.30	4.40	4.50
Molded Package Length	D	4.90	5.00	5.10
Foot Length	L	0.45	0.60	0.75
Footprint	(L1)		1.00 REF	
Foot Angle		0°	-	8°
Lead Thickness	c	0.09	-	0.20
Lead Width	b	0.19	-	0.30

Notes:

1. Pin 1 visual index feature may vary, but must be located within the hatched area.
2. Dimensions D and E1 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.15mm per side.
3. Dimensioning and tolerancing per ASME Y14.5M

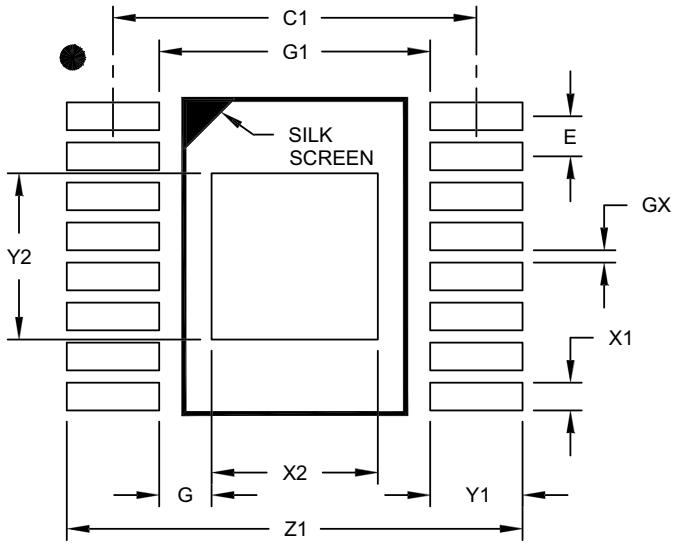
   BSC: Basic Dimension. Theoretically exact value shown without tolerances.

   REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-00068 Rev B Sheet 2 of 2

16-Lead 4.4 mm TSSOP [D8X] Package Outline and Recommended Land Pattern

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		0.65 BSC	
Optional Center Pad Length	Y2			2.70
Optional Center Pad Width	X2			2.70
Clearance Between Contact Pads	G1	4.40		
Contact Pad To Center Pad	G	0.73		
Contact Pad Spacing	C1		5.90	
Contact Pad Width (X16)	X1			0.45
Contact Pad Length (X16)	Y1			1.50
Distance Between Pads	GX	0.20		
Overall Width	Z1			7.40

Notes:

1. Dimensioning and tolerancing per ASME Y14.5M

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

Microchip Technology Drawing No. C04-02068 Rev B

NOTES:

APPENDIX A: REVISION HISTORY

Revision A (December 2024)

- Converted Micrel document MIC2546/7 to Microchip data sheet DS20006959A.
- 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 #	-X	X	XX	-XX
Device	Enable	Junction Temp. Range	Package	Media Type

Device:	MIC2546/7		Dual Programmable Current-Limit Switch
Enable:	-1	=	Active High
	-2	=	Active Low
Junction Temp. Range:	Y	=	–40°C to +85°C
Package:	M	=	16-Lead SOIC
	TS	=	16-Lead TSSOP
Media Type:	<blank>	=	48/Tube (M package option only)
	<blank>	=	94/Tube (TS package option only)
	-TR	=	2500/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 options.

Examples:

a) MIC2546-1YM
MIC2546, Active High Enable, –40°C to +85°C Junction Temp. Range, 16-Lead SOIC, 48/Tube

b) MIC2546-2YTS
MIC2546, Active Low Enable, –40°C to +85°C Junction Temp. Range, 16-Lead TSSOP, 94/Tube

c) MIC2546-2YM-TR
MIC2546, Active Low Enable, –40°C to +85°C Junction Temp. Range, 16-Lead SOIC, 2500/Reel

d) MIC2546-1YTS-TR
MIC2546, Active High Enable, –40°C to +85°C Junction Temp. Range, 16-Lead TSSOP, 2500/Reel

e) MIC2547-2YM
MIC2547, Active Low Enable, –40°C to +85°C Junction Temp. Range, 16-Lead SOIC, 48/Tube

f) MIC2547-1TS
MIC2547, Active High Enable, –40°C to +85°C Junction Temp. Range, 16-Lead TSSOP, 94/Tube

g) MIC2547-1YM-TR
MIC2547, Active High Enable, –40°C to +85°C Junction Temp. Range, 16-Lead SOIC, 2500/Reel

h) MIC2547-2YTS-TR
MIC2547, Active Low Enable, –40°C to +85°C Junction Temp. Range, 16-Lead TSSOP, 2500/Reel

NOTES:

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