LMS1585A 5A/LMS1587 5A and 3A Low Dropout Fast Response Regulators

Check for Samples: LMS1585A , LMS1587

FEATURES

- **Fast Transient Response**
- **Available in Adjustable, 1.5V, and 3.3V versions**
- **Current Limiting and Thermal Protection**
- **Commercial Temp. Tange: 0°C to 125°C**
- **Industrial Temp. Range: −40°C to 125°C**
- **Line Regulation 0.005% (typical)**
- **Load Regulation 0.05% (typical)**
- **Direct Replacement for LT® 1585A/87**

APPLICATIONS

- **Pentium® processor supplies**
- **PowerPC® supplies**
- **Other microprocessor supplies**
- **Low voltage logic supplies**

DESCRIPTION

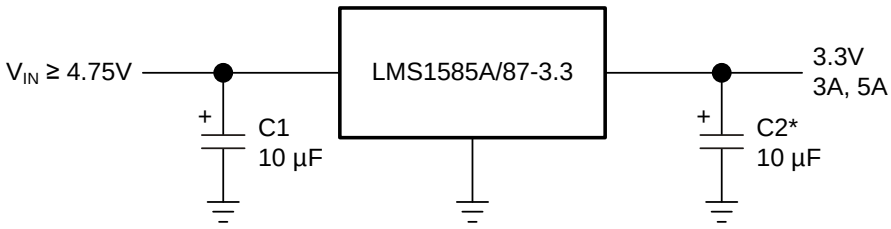
The LMS1585A and LMS1587 are low dropout positive regulators with output load current of 5A and 3A respectively. Their low dropout voltage (1.2V) and fast transient response make them an excellent solution for low voltage microprocessor applications.

The LMS1585A/87 are available in adjustable versions, which can set the output voltage with only two external resistors. In addition, they are also available in 1.5V and 3.3V fixed voltage versions(1).

The LMS1585A/87 circuits include a zener trimmed bandgap reference, current limiting and thermal shutdown. The LMS1585A/87 series are available in KTT (TO-263) and NDE (TO-220) packages.

(1) Consult factory for other fixed voltage options.

Typical Application



* Required for Stability

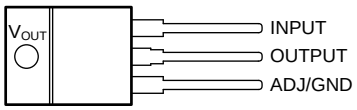


Figure 1. NDE (TO-220)
(Top View)

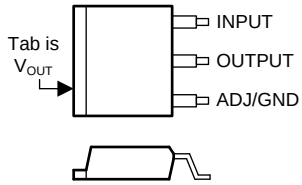


Figure 2. KTT (TO-263)
(Top View)

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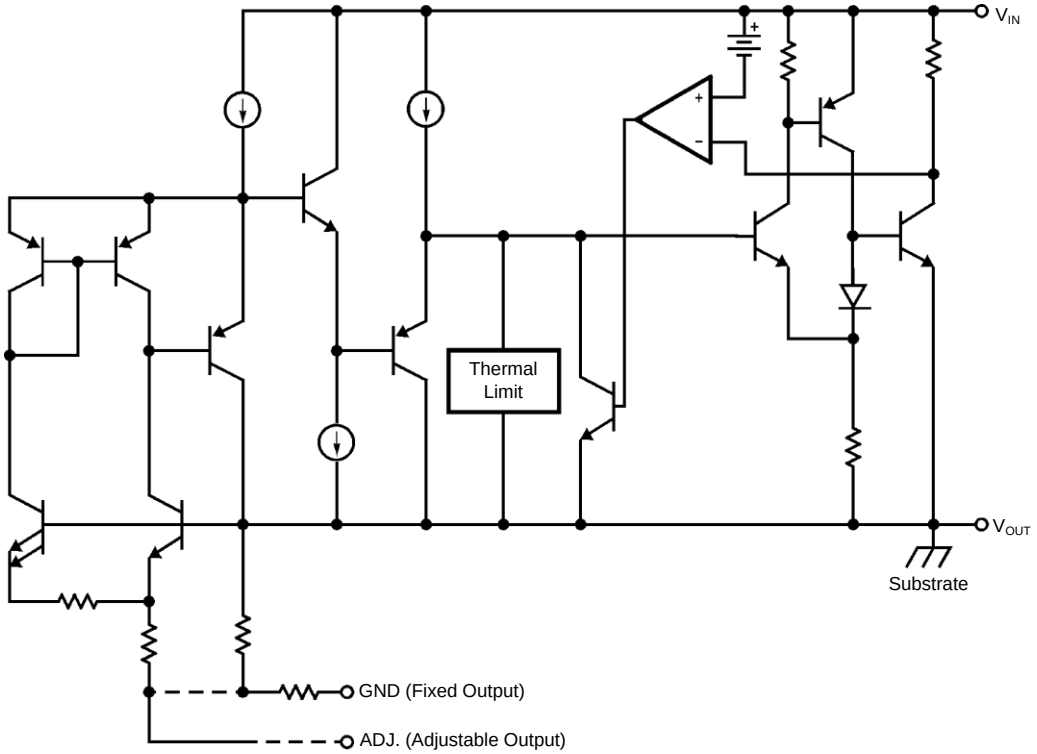

Table 1. LMS1585A/LMS1587 Device Options

Part Number	Output Voltage	Operating Temperature	Package Drawing	Package Type	Output Current
LMS1585AIS-1.5	1.5V	-40°C to 125°C	KTT	TO-263	5A
LMS1585AIS-3.3	3.3V				
LMS1585ACS-ADJ	Adjustable	0°C to 125°C			
LMS1585ACS-1.5	1.5V				
LMS1585ACS-3.3	3.3V				
LMS1585ACT-1.5	1.5V		NDE	TO-220	5A
LMS1585ACT-3.3	3.3V				
LMS1587IS-ADJ	Adjustable	–40°C to 125°C	KTT	TO-263	3A
LMS1587IS-1.5	1.5V				
LMS1587IS-3.3	3.3V				
LMS1587CS-ADJ	Adjustable	0°C to 125°C			
LMS1587CS-3.3	3.3V				
LMS1587CS-1.5	1.5V				
LMS1587IT-1.5	1.5V	–40°C to 125C	NDE	TO-220	
LMS1587CT-ADJ	Adjustable	0°C to 125°C			
LMS1587CT-3.3	3.3V				

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

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ABSOLUTE MAXIMUM RATINGS(1)(2)

Maximum Input to Output Voltage (V_{IN} to GND)	13V
Power Dissipation(3)	Internally Limited
Junction Temperature (T_J)(3)	150˚C
Storage Temperature Range	-65˚C to 150˚C
Lead Temperature	260˚C, 10 sec
ESD Tolerance(4)	2000V

(1) Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is intended to be functional, but specific performance is not ensured. For ensured specifications and the test conditions, see the Electrical Characteristics.
(2) If Military/Aerospace specified devices are required, please contact the TI Sales Office/ Distributors for availability and specifications.
(3) The maximum power dissipation is a function of $T_{J(max)}$, θ_{JA}, and T_A. The maximum allowable power dissipation at any ambient temperature is $P_D = (T_{J(max)} – T_A)/\theta_{JA}$. All numbers apply for packages soldered directly into a PC board.
(4) For testing purposes, ESD was applied using human body model, 1.5 kΩ in series with 100 pF.

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ELECTRICAL CHARACTERISTICS

Typicals and limits appearing in normal type apply for T_J = 25˚C. Limits appearing in **Boldface** type apply over the entire junction temperature range for operation, 0˚C to 125˚C for commercial grade and −40˚C to 125˚C for industrial grade.

Symbol	Parameter	Conditions	Min (1)	Typ (2)	Max (1)	Units
V_{REF}	Reference Voltage	LMS1585A-ADJ $V_{IN}-V_{OUT}$ = 3V, I_{OUT} = 10mA 10mA ≤ I_{OUT} ≤ 5A, 1.5V ≤ $V_{IN}-V_{OUT}$ ≤ 5.75V	1.238 **1.225**	1.250 **1.250**	1.262 **1.275**	V V
		LMS1587-ADJ 10mA ≤ I_{OUT} ≤ 3A, 1.5V ≤ $V_{IN}-V_{OUT}$ ≤ 5.75V	**1.225**	1.250	**1.275**	V
V_{OUT}	Output Voltage	LMS1585A-1.5 I_{OUT} = 0mA, V_{IN} = 5V 0 ≤ I_{OUT} ≤ 5A, 3V ≤ V_{IN} ≤ 7V	1.485 **1.470**	1.500	1.515 **1.530**	V V
		LMS1585A-3.3 I_{OUT} = 0mA, V_{IN} = 5V 0 ≤ I_{OUT} ≤ 5A, 4.75V ≤ V_{IN} ≤ 7V	3.267 **3.235**	3.300 3.300	3.333 **3.365**	V V
		LMS1587-1.5 V_{IN} = 5V, I_{OUT} = 0mA, TJ = 25˚C 0≤ I_{OUT} ≤ 3A, 3V ≤ V_{IN} ≤ 7V	1.485 **1.470**	1.500 1.500	1.515 **1.530**	V V
		LMS1587-3.3 0 ≤ I_{OUT} ≤ 3A, 4.75V ≤ V_{IN} ≤ 7V	**3.235**	3.300	**3.365**	V
ΔV_{OUT}	Line Regulation (3)	LMS1585A/87-ADJ I_{OUT} = 10mA, 2.75V ≤ V_{IN} ≤ 7V		0.005	**0.2**	%
		LMS1585A/87-3.3 I_{OUT} = 0mA, 4.75V ≤ V_{IN} ≤ 7V		0.005	**0.2**	%
		LMS1585A/87-1.5 I_{OUT} = 0mA, 3V ≤ V_{IN} ≤ 7V		0.005	0.2	%
ΔV_{OUT}	Load Regulation (3)	LMS1585A-ADJ $V_{IN}-V_{OUT}$ = 3V, 10mA ≤ I_{OUT} ≤ 5A		0.05	0.3 **0.5**	%
		LMS1585A-1.5/LMS1585A-3.3 V_{IN} = 5V, 0 ≤ I_{OUT} ≤ 5A		0.05 0.05	0.3 **0.5**	%
		LMS1587-ADJ $V_{IN}-V_{OUT}$ = 3V, 10mA ≤ IOUT ≤ 3A		0.05 0.05	0.3 **0.5**	% %
		LMS1587-1.5/LMS1587-3.3 V_{IN} = 5V, 0 ≤ I_{OUT} ≤ 3A		0.05 0.05	0.3 **0.5**	% %
$V_{IN}-V_{OUT}$	Dropout Voltage	LMS1585A-ADJ/LMS1587-ADJ ΔV_{REF} = 1%, I_{OUT} = 3A		1.15	**1.3**	V
		LMS1585A-3.3/LMS1587-3.3/ LMS1585A-1.5/LMS1587-1.5 ΔV_{OUT} = 1%, I_{OUT} = 3A		1.15	**1.3**	V
		LMS1585A-ADJ ΔV_{REF} = 1%, I_{OUT} = 5A		1.2	**1.4**	V
		LMS1585A-1.5/LMS1585A-3.3 ΔV_{OUT} = 1%, I_{OUT} = 5A		1.2	**1.4**	V

(1) All limits are specified by testing or statistical analysis.
(2) Typical Values represent the most likely parametric norm.
(3) Load and line regulation are measured at constant junction temperature, and are ensured up to the maximum power dissipation of 30W. Power dissipation is determined by the input/output differential and the output current. Ensured maximum power dissipation will not be available over the full input/output range.

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ELECTRICAL CHARACTERISTICS (continued)

Typicals and limits appearing in normal type apply for T_J = 25˚C. Limits appearing in **Boldface** type apply over the entire junction temperature range for operation, 0˚C to 125˚C for commercial grade and −40˚C to 125˚C for industrial grade.

I_{LIMIT}	Current Limit	LMS1585A-ADJ/LMS1585A-3.3/LMS1585A-1.5 $V_{IN}-V_{OUT}$ = 5.5V	**5.0**	6.6		A
		LMS1587-ADJ/LMS1587-3.3/LMS1587-1.5 $V_{IN}-V_{OUT}$ = 5.5V	**3.1**	4.3		A
	Minimum Load Current (4)	LMS1585A/87-ADJ 1.5V ≤ $V_{IN}-V_{OUT}$ ≤ 5.75V		2.0	**10.0**	mA
	Quiescent Current	LMS1585A-3.3/LMS1587-3.3/ LMS1585A-1.5/LMS1587-1.5 V_{IN} = 5V		7.0	**13.0**	mA
	Thermal Regulation	TA = 25˚C, 30ms Pulse		0.003		%/W
	Ripple Rejection	LMS1585A-ADJ f_{RIPPLE} = 120Hz, $V_{IN}-V_{OUT}$ = 3V, I_{OUT} = 5A, C_{OUT} = 25µF Tantalum		72		dB
		LMS1585A-1.5 f_{RIPPLE} = 120Hz, C_{OUT} = 25µF Tantalum, I_{OUT} = 5A, V_{IN} = 4.5V	**60**	72		dB
		LMS1585A-3.3 f_{RIPPLE} = 120Hz, C_{OUT} = 25µF Tantalum, I_{OUT} = 5A, V_{IN} = 6.3V		72		dB
		LMS1587-ADJ f_{RIPPLE} = 120 Hz, $V_{IN}-V_{OUT}$ = 3V, I_{OUT} = 3A C_{OUT} = 25 µF Tantalum		72		dB
		LMS1587-1.5 f_{RIPPLE} = 120 Hz, C_{OUT} = 25µF Tantalum, I_{OUT} = 3A, V_{IN} = 4.5V	**60**	72		dB
		LMS1587-3.3 f_{RIPPLE} = 120 Hz, C_{OUT} = 25µF Tantalum, I_{OUT} = 3A, V_{IN} = 6.3V		72		dB
	Adjust Pin Current			55	**120**	µA
	Adjust Pin Current	10mA ≤ I_{OUT} ≤ $I_{FULLLOAD}$, 1.5V ≤ $V_{IN}-V_{OUT}$ ≤ 5.75V (5)		0.2		µA
	Temperature Stability			0.5		%
	Long Term Stability	TA = 125˚C, 1000Hrs		0.03		%
	RMS Output Noise (% of V_{OUT})	10Hz ≤ f ≤ 10kHz		0.003		%
	Thermal Resistance Junction-to-Case	3-Lead KTT (TO-263): Control/Output Section 3-Lead NDE (TO-220): Control/Output Section			0.65/2.7 0.65/2.7	*C/W *C/W

(4) The minimum output current required to maintain regulation.
(5) $I_{FULLLOAD}$ is 5A for LMS1585A and 3A for LMS1587.

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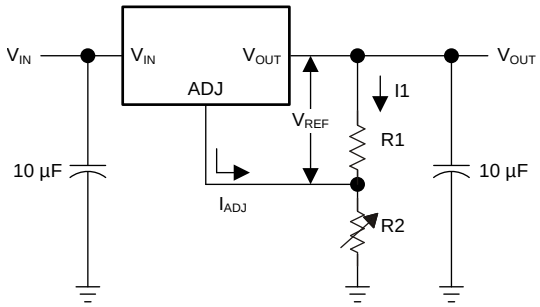
APPLICATION NOTE

OUTPUT VOLTAGE

The adjustable version develops at 1.25V reference voltage, (VREF), between the output and the adjust terminal. As shown in Figure 3, this voltage is applied across resistor R1 to generate a constant current I1. This constant current then flows through R2. The resulting voltage drop across R2 adds to the reference voltage to sets the desired output voltage.

The current I_{ADJ} from the adjustment terminal introduces an output error. But since it is small (120µA max), it becomes negligible when R1 is in the 100Ω range.

For fixed voltage devices, R1 and R2 are integrated inside the devices.



$$V_{OUT} = V_{REF} \left(1 + \frac{R2}{R1}\right) + I_{ADJ}R2$$

Figure 3. Basic Adjustable Regulator

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PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LMS1585ACS-1.5	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	0 to 125	LMS1585 ACS-1.5	
LMS1585ACS-1.5/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1585 ACS-1.5	Samples
LMS1585ACS-3.3	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	0 to 125	LMS1585 ACS-3.3	
LMS1585ACS-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1585 ACS-3.3	Samples
LMS1585ACSX-1.5/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1585 ACS-1.5	Samples
LMS1585ACSX-3.3	NRND	DDPAK/ TO-263	KTT	3		TBD	Call TI	Call TI	0 to 125	LMS1585 ACS-3.3	
LMS1585ACSX-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1585 ACS-3.3	Samples
LMS1585ACSX-ADJ	NRND	DDPAK/ TO-263	KTT	3		TBD	Call TI	Call TI	0 to 125	LMS1585 ACS-ADJ	
LMS1585ACSX-ADJ/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1585 ACS-ADJ	Samples
LMS1585ACT-1.5	NRND	TO-220	NDE	3	45	TBD	Call TI	Call TI	0 to 125	LMS1585ACT 1.5	
LMS1585ACT-1.5/NOPB	ACTIVE	TO-220	NDE	3	45	Green (RoHS & no Sb/Br)	CU SN	Level-1-NA-UNLIM	0 to 125	LMS1585ACT 1.5	Samples
LMS1585ACT-3.3/NOPB	ACTIVE	TO-220	NDE	3	45	Green (RoHS & no Sb/Br)	CU SN	Level-1-NA-UNLIM	0 to 125	LMS1585 ACT-3.3	Samples
LMS1585AIS-1.5	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	-40 to 125	LMS1585 AIS-1.5	
LMS1585AIS-1.5/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1585 AIS-1.5	Samples
LMS1585AIS-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1585 AIS-3.3	Samples
LMS1585AISX-3.3/NO	PREVIEW	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1585 AIS-3.3	
LMS1587CS-1.5	NRND	DDPAK/ TO-263	KTT	3		TBD	Call TI	Call TI	0 to 125	LMS1587 CS-1.5	

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LMS1587CS-1.5/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1587 CS-1.5	Samples
LMS1587CS-3.3	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	0 to 125	LMS1587 CS-3.3	
LMS1587CS-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1587 CS-3.3	Samples
LMS1587CS-ADJ	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	0 to 125	LMS1587 CS-ADJ	
LMS1587CS-ADJ/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1587 CS-ADJ	Samples
LMS1587CSX-1.5	NRND	DDPAK/ TO-263	KTT	3		TBD	Call TI	Call TI	0 to 125	LMS1587 CS-1.5	
LMS1587CSX-1.5/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1587 CS-1.5	Samples
LMS1587CSX-3.3	NRND	DDPAK/ TO-263	KTT	3	500	TBD	Call TI	Call TI	0 to 125	LMS1587 CS-3.3	
LMS1587CSX-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1587 CS-3.3	Samples
LMS1587CSX-ADJ	NRND	DDPAK/ TO-263	KTT	3		TBD	Call TI	Call TI	0 to 125	LMS1587 CS-ADJ	
LMS1587CSX-ADJ/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	0 to 125	LMS1587 CS-ADJ	Samples
LMS1587CT-3.3	NRND	TO-220	NDE	3	45	TBD	Call TI	Call TI	0 to 125	LMS1587 CT-3.3	
LMS1587CT-3.3/NOPB	ACTIVE	TO-220	NDE	3	45	Green (RoHS & no Sb/Br)	CU SN	Level-1-NA-UNLIM	0 to 125	LMS1587 CT-3.3	Samples
LMS1587CT-ADJ	NRND	TO-220	NDE	3	45	TBD	Call TI	Call TI	0 to 125	LMS1587 CT-ADJ	
LMS1587CT-ADJ/NOPB	ACTIVE	TO-220	NDE	3	45	Green (RoHS & no Sb/Br)	CU SN	Level-1-NA-UNLIM	0 to 125	LMS1587 CT-ADJ	Samples
LMS1587IS-1.5	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	-40 to 125	LMS1587 IS-1.5	
LMS1587IS-1.5/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1587 IS-1.5	Samples
LMS1587IS-3.3	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	-40 to 125	LMS1587 IS-3.3	

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LMS1587IS-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1587 IS-3.3	Samples
LMS1587IS-ADJ	NRND	DDPAK/ TO-263	KTT	3	45	TBD	Call TI	Call TI	-40 to 125	LMS1587 IS-ADJ	
LMS1587IS-ADJ/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	45	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1587 IS-ADJ	Samples
LMS1587ISX-3.3/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1587 IS-3.3	Samples
LMS1587ISX-ADJ	NRND	DDPAK/ TO-263	KTT	3	500	TBD	Call TI	Call TI	-40 to 125	LMS1587 IS-ADJ	
LMS1587ISX-ADJ/NOPB	ACTIVE	DDPAK/ TO-263	KTT	3	500	Pb-Free (RoHS Exempt)	CU SN	Level-3-245C-168 HR	-40 to 125	LMS1587 IS-ADJ	Samples
LMS1587IT-1.5/NOPB	ACTIVE	TO-220	NDE	3	45	Green (RoHS & no Sb/Br)	CU SN	Level-1-NA-UNLIM	-40 to 125	LMS1587 IT-1.5	Samples

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
TBD: The Pb-Free/Green conversion plan has not been defined.
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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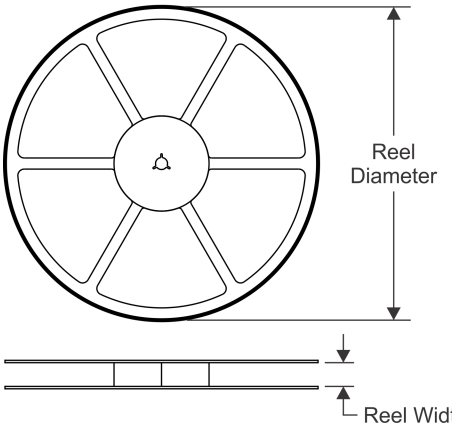
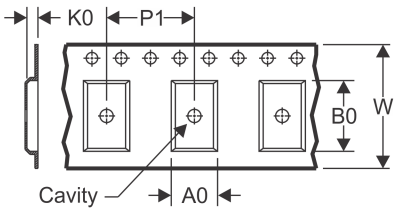
TAPE AND REEL INFORMATION

REEL DIMENSIONS

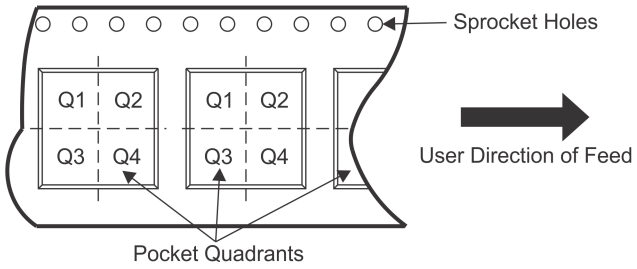


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

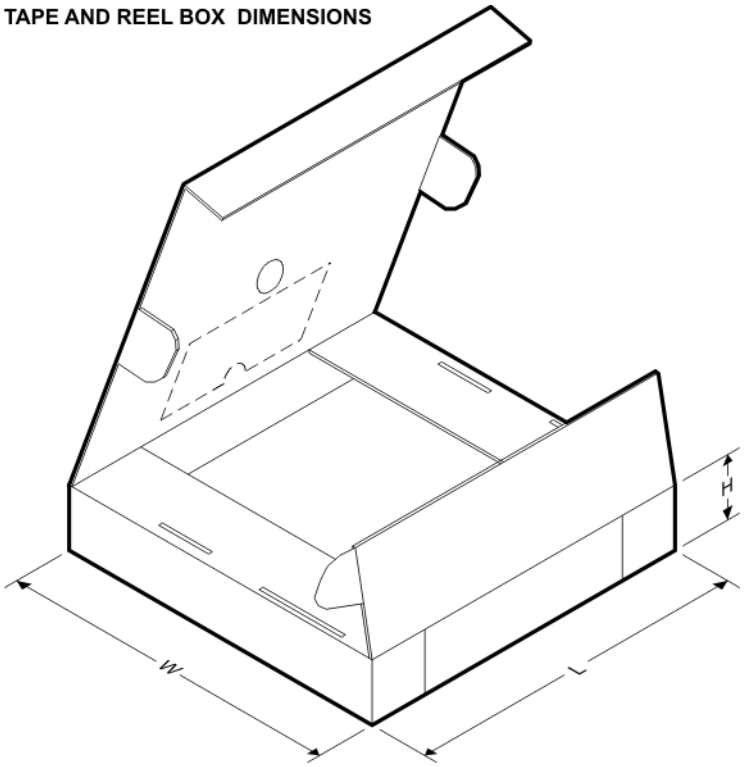
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
LMS1585ACSX-1.5/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1585ACSX-3.3/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1585ACSX-ADJ/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587CSX-1.5/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587CSX-3.3	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587CSX-3.3/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587CSX-ADJ/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587ISX-3.3/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587ISX-ADJ	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2
LMS1587ISX-ADJ/NOPB	DDPAK/ TO-263	KTT	3	500	330.0	24.4	10.75	14.85	5.0	16.0	24.0	Q2

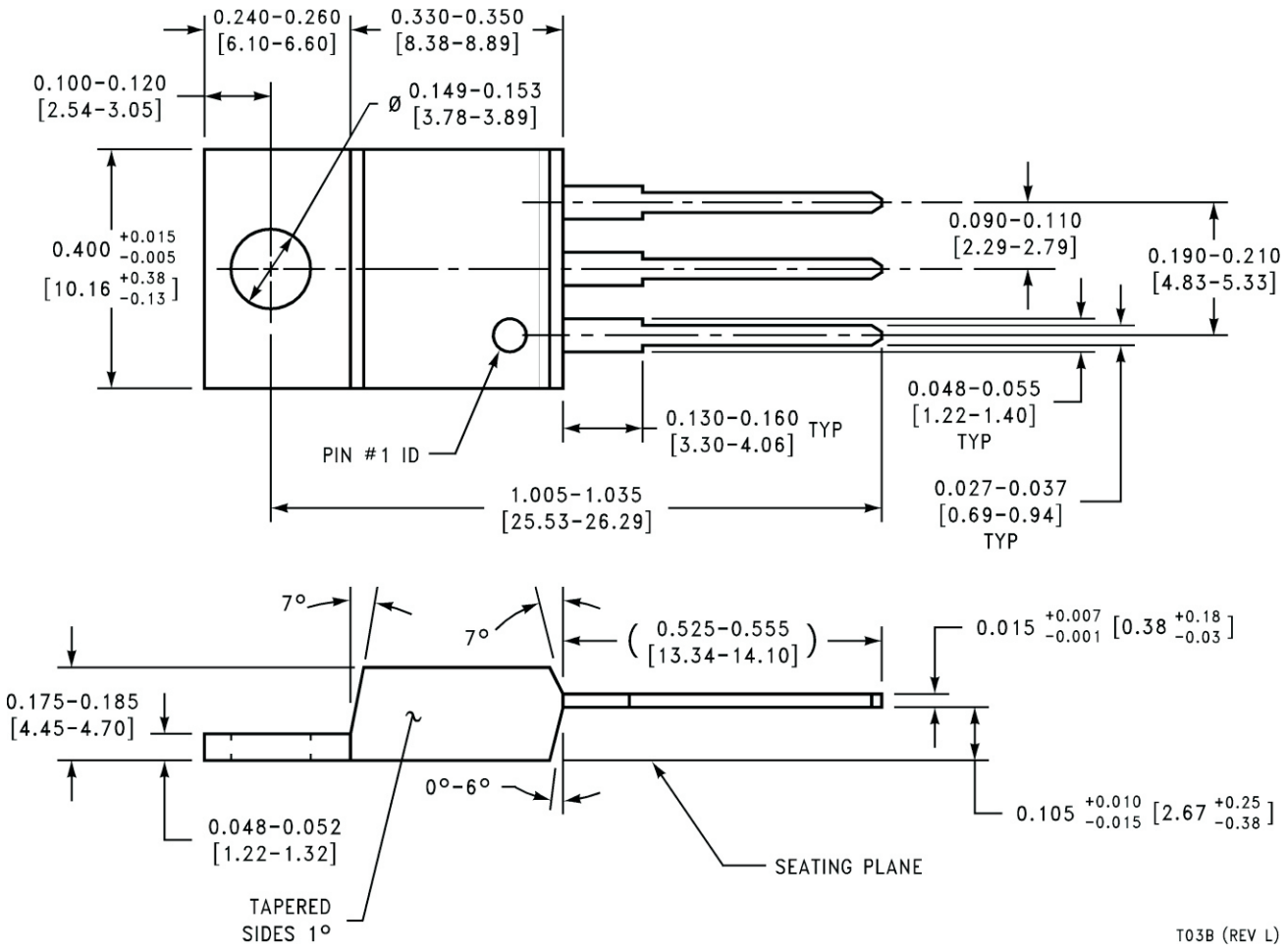
TAPE AND REEL BOX DIMENSIONS



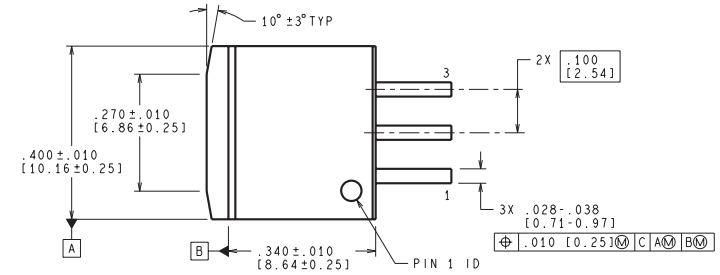
*All dimensions are nominal

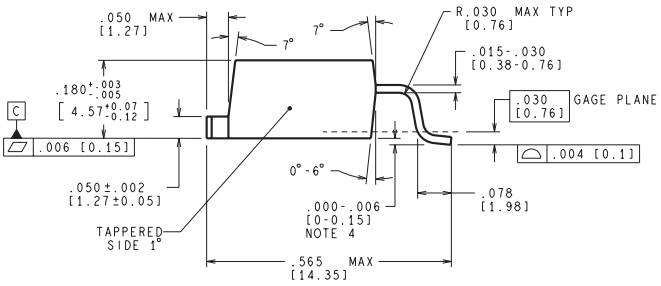
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LMS1585ACSX-1.5/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1585ACSX-3.3/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1585ACSX-ADJ/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587CSX-1.5/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587CSX-3.3	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587CSX-3.3/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587CSX-ADJ/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587ISX-3.3/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587ISX-ADJ	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0
LMS1587ISX-ADJ/NOPB	DDPAK/TO-263	KTT	3	500	367.0	367.0	45.0

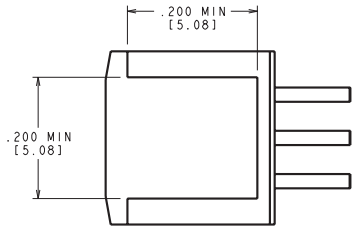
NDE0003B


0.240-0.260
[6.10-6.60]
0.330-0.350
[8.38-8.89]
0.100-0.120
[2.54-3.05]
Ø 0.149-0.153
[3.78-3.89]
0.400 +0.015 -0.005
[10.16 +0.38 -0.13]
0.090-0.110
[2.29-2.79]
0.190-0.210
[4.83-5.33]
0.048-0.055
[1.22-1.40]
TYP
0.130-0.160 TYP
[3.30-4.06]
PIN #1 ID
1.005-1.035
[25.53-26.29]
0.027-0.037
[0.69-0.94]
TYP
7°
7°
(0.525-0.555
[13.34-14.10])
0.015 +0.007 -0.001 [0.38 +0.18 -0.03]
0.175-0.185
[4.45-4.70]
0°-6°
0.105 +0.010 -0.015 [2.67 +0.25 -0.38]
0.048-0.052
[1.22-1.32]
SEATING PLANE
TAPERED
SIDES 1°
T03B (REV L)

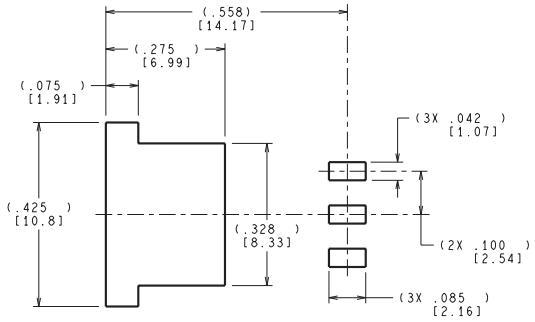
KTT0003B







BOTTOM SIDE OF PACKAGE



LAND PATTERN RECOMMENDATION

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TS3B (Rev F)

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