Surface Mount 30,000 Watt Transient Voltage Suppressor

MPLAD30KP14A – MXLPLAD30KP400CA(e3)

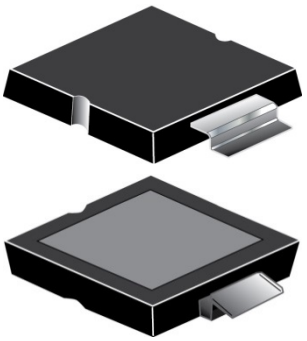
Product Overview

These 30 kW rated transient voltage suppressors (TVS) in a surface mount PLAD package are provided with design features to minimize thermal resistance and cumulative heating. These devices have the ability to clamp dangerous high voltage, short term transients such as those produced by electrostatic discharge, radiated RFI, inductive load dumps, and the secondary effects of lightning strikes before they reach sensitive component regions of a circuit. Typical applications include lightning and automotive load dump protection. They are particularly effective at meeting the multi-stroke lightning standard RTCA DO-160, section 22 for aircraft design. The all-metal bottom of this space-efficient, low profile package provides a very low thermal impedance path for heat to escape to the mounting substrate, keeping the junction temperature low. The PLAD30KP is offered with standoff voltages (V_{WM}) from 14 to 400 volts in either unidirectional or bidirectional versions. For more information on PLAD packaged products and our broad range of TVS solutions, please see the Microchip website.

Features

- Available in both unidirectional and bidirectional construction (bidirectional with CA suffix)
- 3σ lot norm screening performed on standby current (I_D) for all M prefix devices
- High reliability with wafer fabrication and assembly lot traceability for all M prefix devices
- 100% surge tested devices
- Suppresses transients up to 30,000W at 10/1000 µs (see Figure 4-1)
- Enhanced reliability screening in reference to MIL-PRF-19500 are available. Refer to Hi-Rel Non-Hermetic Product Portfolio for more details on the screening options.
- Moisture classification is Level 1 with no dry pack required per IPC/JEDEC J-STD-020F
- RoHS compliant versions are available

Figure 1. PLAD



(The cathode is the metal base under the body of this device.)

Also available:

PLAD15KP

(15,000 watts)

MPLAD15KP7.0A thru MPLAD15KP200CA

© 2024 Microchip Technology Inc. and its subsidiaries

Applications/Benefits

- Available in working standoff voltage (V_{WM}) range 14 to 400 volts
- Protection from switching transients and induced RFI
- Protection from ESD, and EFT per IEC 61000-4-2 and IEC 61000-4-4
- Secondary lightning protection per IEC 61000-4-5 with 42 ohms source impedance:
  Class 1, 2,3, 4, 5: MPLAD30KP14A to MXLPLAD30KP400CA
  Class 5: MPLAD30KP14A to MXLPLAD30KP400CA (short distance)
  Class 5: MPLAD30KP14A to MXLPLAD30KP220CA (long distance)
- Secondary lightning protection per IEC 61000-4-5 with 12 ohms source impedance:
  Class 1, 2, 3: MPLAD30KP14A to MXLPLAD30KP400CA
  Class 4: MPLAD30KP14A to MXLPLAD30KP220CA
- Secondary lightning protection per IEC 61000-4-5 with 2 ohms source impedance:
  Class 2: MPLAD30KP14A to MXLPLAD30KP400CA
  Class 3: MPLAD30KP14A to MXLPLAD30KP220CA
  Class 4: MPLAD30KP14A to MXLPLAD30KP110CA
- Pin injection protection per RTCA/DO-160F for Waveform 4 (6.4/69 µs at 25 °C)[1]:
  Level 4: MPLAD30KP14A to MXLPLAD30KP400CA
  Level 5: MPLAD30KP14A to MXLPLAD30KP260CA
- Pin injection protection per RTCA/DO-160F for Waveform 5A (40/120 µs at 25 °C)[1]:
  Level 4: MPLAD30KP14A to MXLPLAD30KP64CA
  Level 5: MPLAD30KP14A to MXLPLAD30KP26CA

Note:

1. See MicroNote 132 for further temperature derating selection.

© 2024 Microchip Technology Inc. and its subsidiaries

Table of Contents

© 2024 Microchip Technology Inc. and its subsidiaries

1. Maximum Ratings

Table 1-1. Maximum Ratings at 25 °C Unless Otherwise Noted

Parameters/Test Conditions		Symbol	Value	Unit
Junction and storage temperature		T_J and T_{STG}	–55 to +150	°C
Thermal resistance junction-to-ambient[1]		$R_{\Theta JA}$	50	°C/W
Thermal resistance junction-to-case		$R_{\Theta JC}$	1.0	°C/W
Peak pulse power[2]		P_{PP}	30,000	W
$t_{clamping}$ (0 volts to $V_{(BR)}$ min)	Unidirectional Bidirectional	—	<100 <5	ps ns
Forward surge current[3]		I_{FSM}	1,500	A
Solder temperature at 10 seconds		T_{SP}	260	°C
Average power dissipation[5]	T_A = 25 °C T_C = 100 °C	P_D	2.5 [1] 50 [4]	W W

1. When mounted on FR4 PC board (1 oz Cu) with recommended mounting pad (see Pad Layout).
2. Also see Figure 4-1 and Figure 4-2. At 10/1000 µs with impulse repetition rate (duty factor) of 0.05% or less.
3. At 8.3 ms half-sine wave (unidirectional devices only).
4. Case temperature controlled on heat sink as specified.
5. See MicroNote 134 for derating P_{PP} when also applying steady-state power.

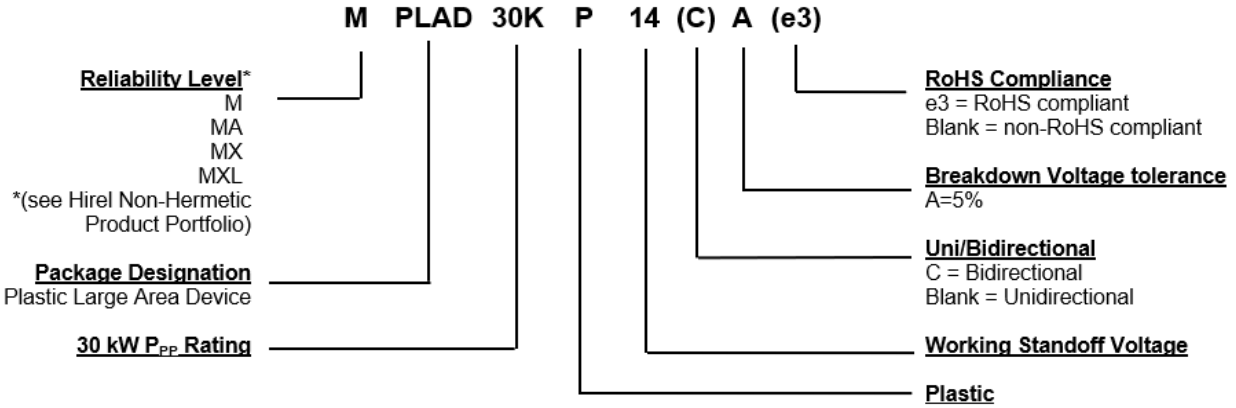
1.1 Mechanical Packaging

- Case: Void-free transfer molded thermosetting epoxy body meeting UL94V-0
- Terminals: Tin-lead or RoHS compliant annealed matte-tin plating readily solderable per MIL-STD-750, method 2026
- Marking: Reliability level, part number, date code
- Polarity: Unidirectional devices include polarity symbol, the cathode is on the metal backside (package bottom)
- Available in bulk or custom tape-and-reel packaging
- Tape-and-reel: Standard per EIA-481-B (add “TR” suffix to part number). Consult factory for quantities.
- Weight: Approximately 1.7 – 2.0 grams
- See Package Dimensions

© 2024 Microchip Technology Inc. and its subsidiaries

2. Part Nomenclature

Figure 2-1. Part Nomenclature



2.1 Symbols and Definitions

Table 2-1. Symbols and Definitions

Symbol	Definition
$\alpha_{V(BR)}$	Temperature coefficient of breakdown voltage: The change in breakdown voltage divided by the change in temperature that caused it expressed in %/°C or mV/°C.
C_T	Total capacitance: The total small signal capacitance between the diode terminals of a complete device.
$I_{(BR)}$	Breakdown current: The current used for measuring breakdown voltage $V_{(BR)}$.
I_D	Standby current: The current through the device at working standoff voltage.
I_{FSM}	Surge peak forward current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B).
I_{PP}	Peak impulse current: The peak current during an impulse.
P_{PP}	Peak pulse power: The peak power that can be applied for a specific pulse width and waveform. The product of I_{PP} and V_C.
$V_{(BR)}$	Breakdown voltage: The voltage across the device at a specified current $I_{(BR)}$ in the breakdown region.
V_C	Clamping voltage: The voltage across the device in a region of low differential resistance during the application of an impulse current (I_{PP}) for a specified waveform.
V_{WM}	Working standoff voltage: The maximum-rated value of DC or repetitive peak positive cathode-to-anode voltage that may be continuously applied over the standard operating temperature.

© 2024 Microchip Technology Inc. and its subsidiaries

3. Electrical Characteristics

Table 3-1. Electrical Characteristics at 25 °C Unless Otherwise Stated

Part Number	Working Standoff Voltage V_{WM} (Note 1)	Breakdown Voltage $V_{(BR)}$ at $I_{(BR)}$		Maximum Clamping Voltage V_C at I_{PP}	Maximum Standby Current I_D at V_{WM}	Maximum Peak Pulse Current I_{PP} (Figure 4-3)	Maximum Temperature Coefficient $\alpha_{V(BR)}$
	Volts	Volts	mA	Volts	µA	A	mV/°C
MPLAD30KP14(C)A	14	15.6 – 17.2	150	24.0	3000	1251 [5]	10
MPLAD30KP15(C)A	15	16.7 – 18.5	5	25.8	750	1164 [5]	12
MPLAD30KP16(C)A	16	17.8 – 19.7	5	27.2	450	1101 [5]	12
MPLAD30KP17(C)A	17	18.9 – 20.9	5	28.8	150	1041 [5]	14
MPLAD30KP18(C)A	18	20.0 – 22.1	5	30.8	60	975	16
MPLAD30KP20(C)A	20	22.2 – 24.5	5	34.0	45	882	18
MPLAD30KP22(C)A	22	24.4 – 26.9	5	36.4	20	822	20
MPLAD30KP24(C)A	24	26.7 – 29.5	5	39.8	10	753	22
MPLAD30KP26(C)A	26	28.9 – 31.9	5	43.0	10	696	24
MPLAD30KP28(C)A	28	31.1 – 34.4	5	46.4	10	645	26
MPLAD30KP30(C)A	30	33.3 – 36.8	5	48.8	10	618	30
MPLAD30KP33(C)A	33	36.7 – 40.6	5	53.3	10	564	35
MPLAD30KP36(C)A	36	40.0 – 44.2	5	58.1	10	516	38
MPLAD30KP40(C)A	40	44.4 – 49.1	5	64.5	10	468	44
MPLAD30KP43(C)A	43	47.8 – 52.8	5	69.4	10	432	50
MPLAD30KP45(C)A	45	50.0 – 55.3	5	72.7	10	414	51
MPLAD30KP48(C)A	48	53.3 – 58.9	5	77.4	10	390	54
MPLAD30KP51(C)A	51	56.7 – 62.7	5	82.4	10	366	58
MPLAD30KP54(C)A	54	60.0 – 66.3	5	87.1	10	342	64
MPLAD30KP58(C)A	58	64.4 – 71.2	5	93.6	10	318	70
MPLAD30KP60(C)A	60	66.7 – 73.7	5	96.8	10	312	72
MPLAD30KP64(C)A	64	71.1 – 78.6	5	103.0	10	294	75
MPLAD30KP70(C)A	70	77.8 – 86.0	5	113	10	264	84
MPLAD30KP75(C)A	75	83.3 – 92.1	5	121	10	246	90
MPLAD30KP78(C)A	78	86.7 – 95.8	5	126	10	240	95
MPLAD30KP85(C)A	85	94.4 - 104.0	5	137	10	216	104
MPLAD30KP90(C)A	90	100 – 111	5	146	10	204	109
MPLAD30KP100(C)A	100	111 – 123	5	162	10	186	122
MPLAD30KP110(C)A	110	122 – 135	5	177	10	168	132
MPLAD30KP120(C)A	120	133 – 147	5	193	10	156	145
MPLAD30KP130(C)A	130	144 – 159	5	209	10	142	157
MPLAD30KP150(C)A	150	167 – 185	5	243	10	124	183
MPLAD30KP160(C)A	160	178 – 197	5	259	10	116	195
MPLAD30KP170(C)A	170	189 – 209	5	275	10	110	207

© 2024 Microchip Technology Inc. and its subsidiaries

.....continued

Part Number	Working Standoff Voltage V_{WM} (Note 1)	Breakdown Voltage $V_{(BR)}$ at $I_{(BR)}$		Maximum Clamping Voltage V_C at I_{PP}	Maximum Standby Current I_D at V_{WM}	Maximum Peak Pulse Current I_{PP} (Figure 4-3)	Maximum Temperature Coefficient $\alpha_{V(BR)}$
	Volts	Volts	mA	Volts	µA	A	mV/°C
MPLAD30KP180(C)A	180	200 – 221	5	291	10	104	219
MPLAD30KP200(C)A	200	222 – 245	5	322	10	94	243
MPLAD30KP220(C)A	220	245 – 271	5	356	10	84	269
MPLAD30KP260(C)A	260	289 – 320	5	419	10	71	318
MPLAD30KP280(C)A	280	311 – 345	5	451	10	66	344
MPLAD30KP300(C)A	300	333 – 369	5	483	10	62	368
MPLAD30KP350(C)A	350	389 – 431	5	564	10	53	430
MPLAD30KP400(C)A	400	444 – 492	5	644	10	46	490

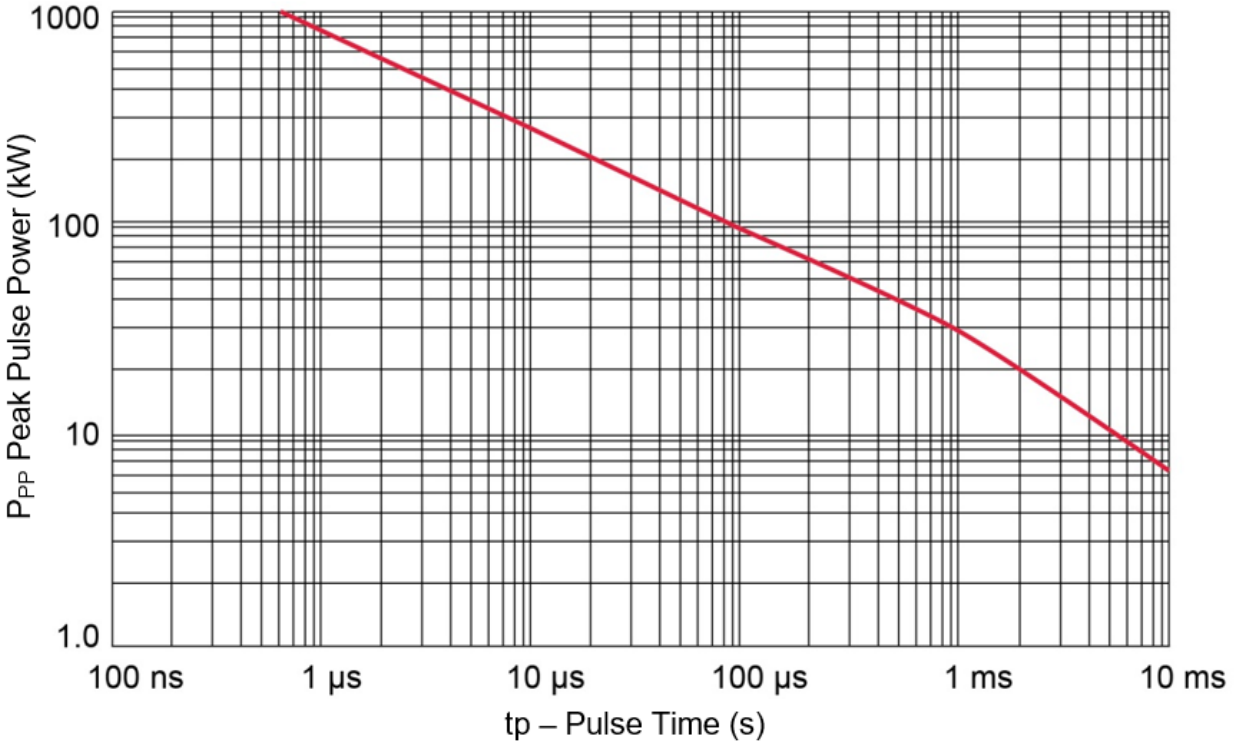
Notes:

1. Normal selection criteria for TVS devices is by working standoff voltage (V_{WM}) and should be equal or greater than DC or continuous peak operating voltage.
2. TVS devices are tested to maximum peak pulse current (I_{PP}) with clamping voltage monitored. This surge capability is one of the most significant electrical characteristics of the device and should be considered as part of customer quality inspections.
3. For bidirectional parts, the capacitance will be half that shown in Figure 4-2 for zero bias.
4. For unidirectional parts, the forward voltage (V_F) is 4.0 volts maximum at 500 Amps peak for 8.3 ms half-sine wave.
5. Surge testing is performed to 1000 Amps due to equipment limitations.

© 2024 Microchip Technology Inc. and its subsidiaries

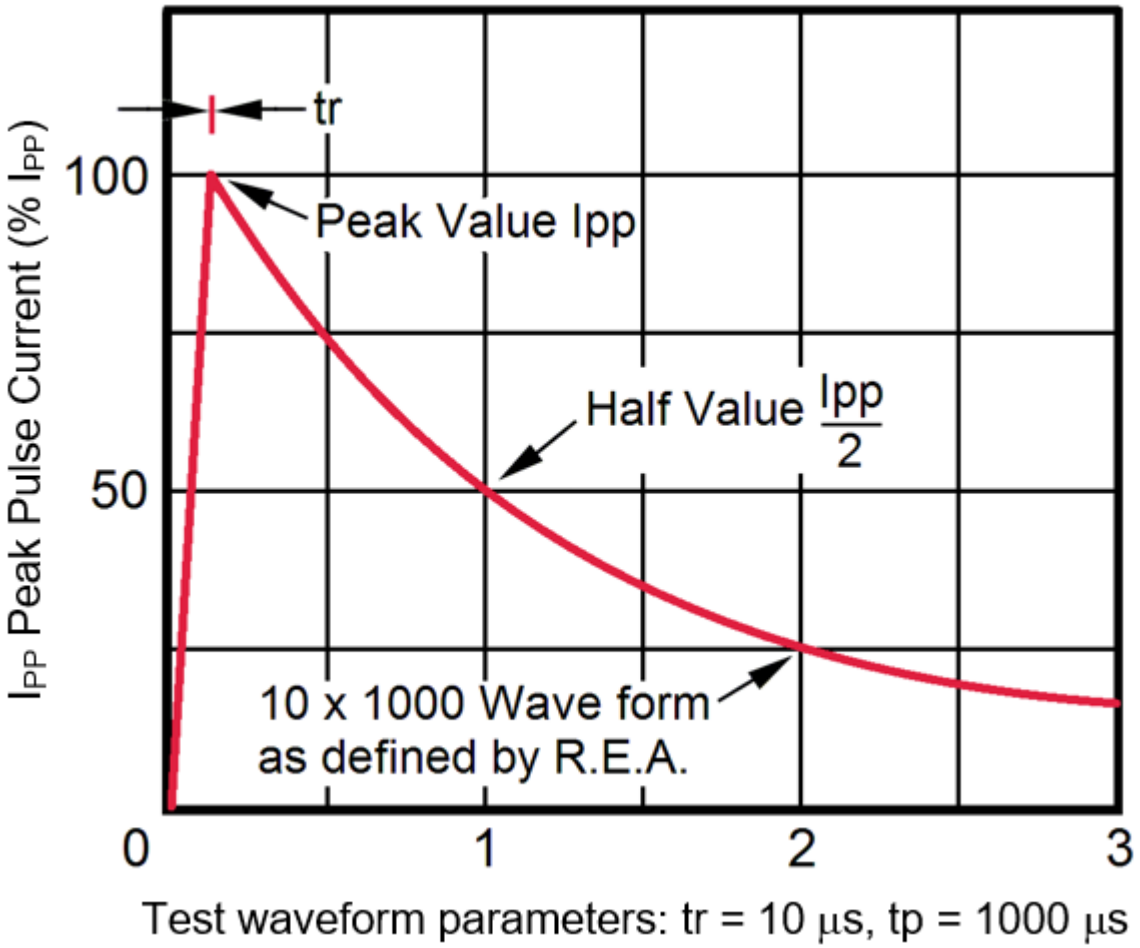
4. Graphs

Figure 4-1. Peak Pulse Power Vs. Pulse Time



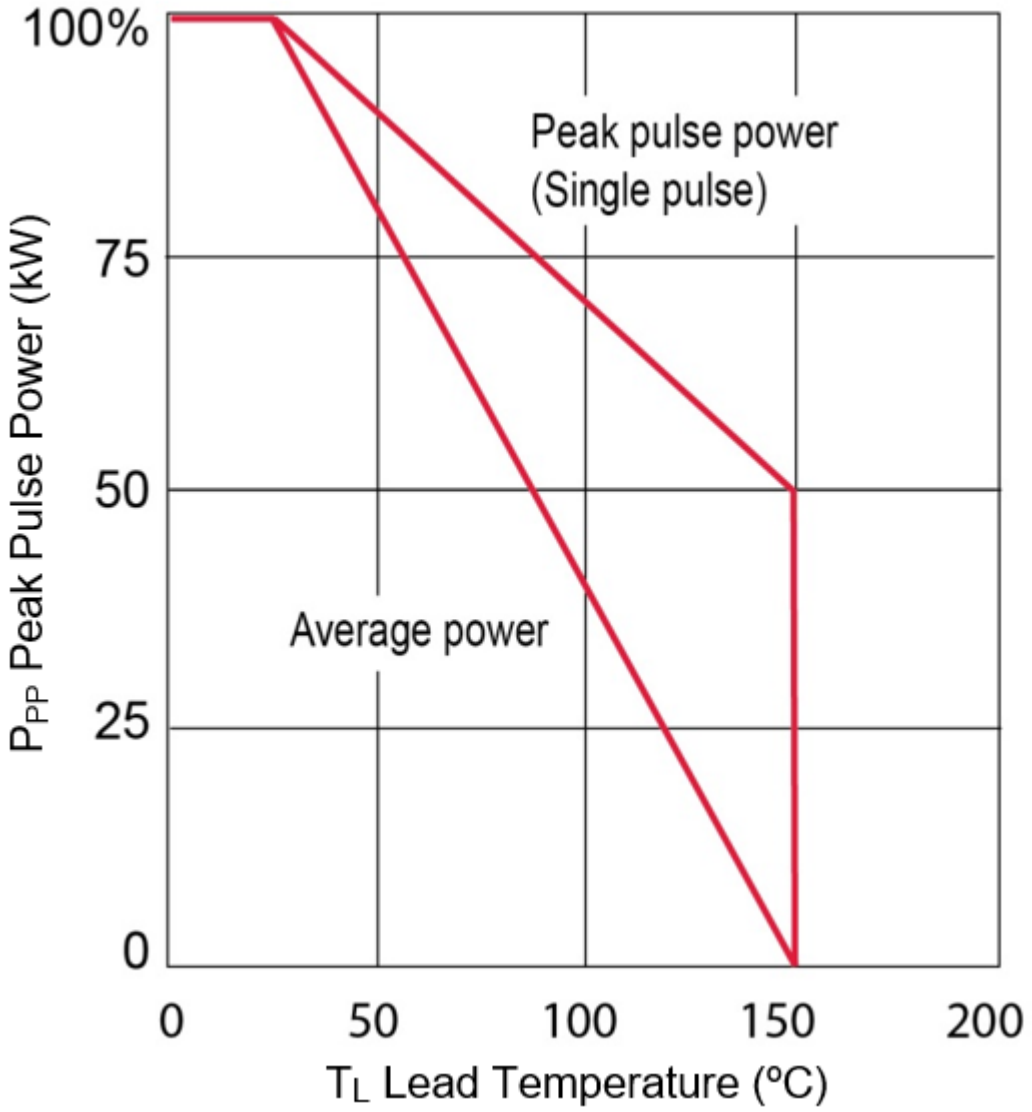
© 2024 Microchip Technology Inc. and its subsidiaries

Figure 4-2. Pulse Waveform



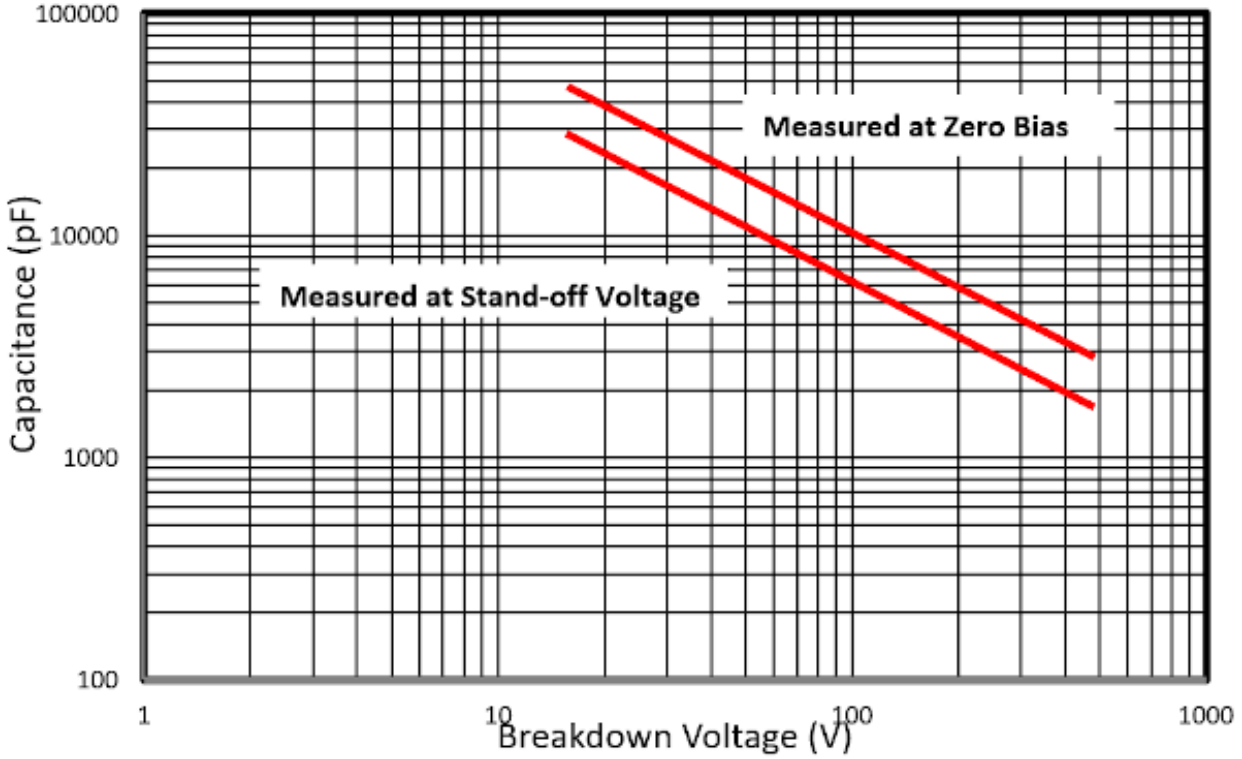
© 2024 Microchip Technology Inc. and its subsidiaries

Figure 4-3. Derating Curve



© 2024 Microchip Technology Inc. and its subsidiaries

Figure 4-4. Typical Capacitance Vs. Breakdown Voltage (Unidirectional Configuration)

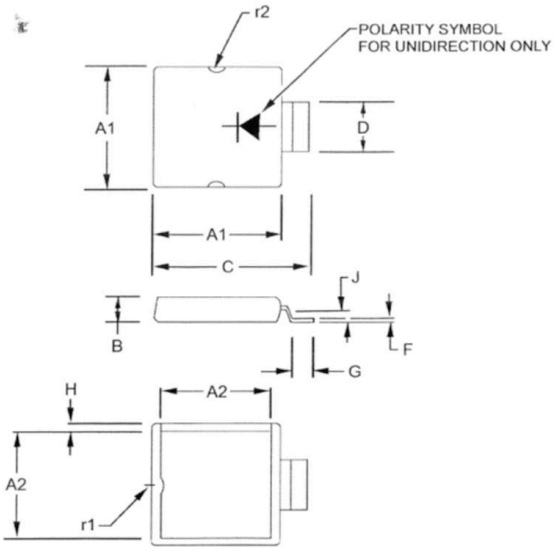


Bidirectional capacitance is half that shown at zero volts.

© 2024 Microchip Technology Inc. and its subsidiaries

5. Package Dimensions

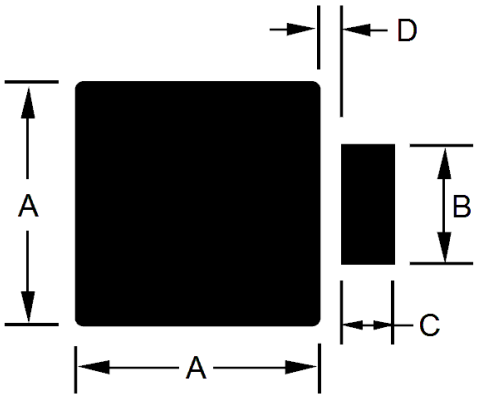
Figure 5-1. Package Dimensions



Ref.	Dimensions			
	Inch		Millimeters	
	Min.	Max.	Min.	Max.
A1	0.485	0.495	12.32	12.57
A2	0.445	0.455	11.30	11.56
B	0.145	0.155	3.68	3.94
C	0.585	0.595	14.86	15.11
D	0.200	0.210	5.08	5.33
F	0.008	0.013	0.20	0.33
G	0.055	0.065	1.40	1.65
H	0.015	0.025	0.38	0.64
J	0.062 TYP.		1.57 TYP.	
r1	0.030 TYP.		0.76 TYP.	
r2	0.045 TYP.		1.14 TYP.	

5.1 Pad Layout

Figure 5-2. Pad Layout



Ref.	Dimensions			
	Inch		Millimeters	
	Min.	Max.	Min.	Max.
A	0.465	0.475	11.81	12.07
B	0.225	0.235	5.72	5.97
C	0.095	0.105	2.41	2.67
D	0.04	0.05	1.02	1.27

© 2024 Microchip Technology Inc. and its subsidiaries

6. Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

Revision	Date	Description
A	01/2024	Initial revision.

© 2024 Microchip Technology Inc. and its subsidiaries

Microchip Information

The Microchip Website

Microchip provides online support via our website at www.microchip.com/. This website is used to make files and information easily available to customers. Some of the content available includes:

- **Product Support** – Data sheets and errata, application notes and sample programs, design resources, user's guides and hardware support documents, latest software releases and archived software
- **General Technical Support** – Frequently Asked Questions (FAQs), technical support requests, online discussion groups, Microchip design partner program member listing
- **Business of Microchip** – Product selector and ordering guides, latest Microchip press releases, listing of seminars and events, listings of Microchip sales offices, distributors and factory representatives

Product Change Notification Service

Microchip's product change notification service helps keep customers current on Microchip products. Subscribers will receive email notification whenever there are changes, updates, revisions or errata related to a specified product family or development tool of interest.

To register, go to www.microchip.com/pcn and follow the registration instructions.

Customer Support

Users of Microchip products can receive assistance through several channels:

- Distributor or Representative
- Local Sales Office
- Embedded Solutions Engineer (ESE)
- Technical Support

Customers should contact their distributor, representative or ESE for support. Local sales offices are also available to help customers. A listing of sales offices and locations is included in this document.

Technical support is available through the website at: www.microchip.com/support

Microchip Devices Code Protection Feature

Note the following details of the code protection feature on Microchip products:

- Microchip products meet the specifications contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is secure when used in the intended manner, within operating specifications, and under normal conditions.
- Microchip values and aggressively protects its intellectual property rights. Attempts to breach the code protection features of Microchip product is strictly prohibited and may violate the Digital Millennium Copyright Act.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of its code. Code protection does not mean that we are guaranteeing the product is "unbreakable". Code protection is constantly evolving. Microchip is committed to continuously improving the code protection features of our products.

Legal Notice

This publication and the information herein may be used only with Microchip products, including to design, test, and integrate Microchip products with your application. Use of this information in any other manner violates these terms. Information regarding device applications is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure

© 2024 Microchip Technology Inc. and its subsidiaries

that your application meets with your specifications. Contact your local Microchip sales office for additional support or, obtain additional support at www.microchip.com/en-us/support/design-help/client-support-services.

THIS INFORMATION IS PROVIDED BY MICROCHIP "AS IS". MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTIES RELATED TO ITS CONDITION, QUALITY, OR PERFORMANCE.

IN NO EVENT WILL MICROCHIP BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL LOSS, DAMAGE, COST, OR EXPENSE OF ANY KIND WHATSOEVER RELATED TO THE INFORMATION OR ITS USE, HOWEVER CAUSED, EVEN IF MICROCHIP HAS BEEN ADVISED OF THE POSSIBILITY OR THE DAMAGES ARE FORESEEABLE. TO THE FULLEST EXTENT ALLOWED BY LAW, MICROCHIP'S TOTAL LIABILITY ON ALL CLAIMS IN ANY WAY RELATED TO THE INFORMATION OR ITS USE WILL NOT EXCEED THE AMOUNT OF FEES, IF ANY, THAT YOU HAVE PAID DIRECTLY TO MICROCHIP FOR THE INFORMATION.

Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights unless otherwise stated.

Trademarks

The Microchip name and logo, the Microchip logo, Adaptec, AVR, AVR logo, AVR Freaks, BesTime, BitCloud, CryptoMemory, CryptoRF, dsPIC, flexPWR, HELDO, IGLOO, JukeBlox, KeeLoq, Kleer, LANCheck, LinkMD, maXStylus, maXTouch, MediaLB, megaAVR, Microsemi, Microsemi logo, MOST, MOST logo, MPLAB, OptoLyzer, PIC, picoPower, PICSTART, PIC32 logo, PolarFire, Prochip Designer, QTouch, SAM-BA, SenGenuity, SpyNIC, SST, SST Logo, SuperFlash, Symmetricom, SyncServer, Tachyon, TimeSource, tinyAVR, UNI/O, Vectron, and XMEGA are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

AgileSwitch, ClockWorks, The Embedded Control Solutions Company, EtherSynch, Flashtec, Hyper Speed Control, HyperLight Load, Libero, motorBench, mTouch, Powermite 3, Precision Edge, ProASIC, ProASIC Plus, ProASIC Plus logo, Quiet-Wire, SmartFusion, SyncWorld, TimeCesium, TimeHub, TimePictra, TimeProvider, and ZL are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Adjacent Key Suppression, AKS, Analog-for-the-Digital Age, Any Capacitor, AnyIn, AnyOut, Augmented Switching, BlueSky, BodyCom, Clockstudio, CodeGuard, CryptoAuthentication, CryptoAutomotive, CryptoCompanion, CryptoController, dsPICDEM, dsPICDEM.net, Dynamic Average Matching, DAM, ECAN, Espresso T1S, EtherGREEN, EyeOpen, GridTime, IdealBridge, IGaT, In-Circuit Serial Programming, ICSP, INICnet, Intelligent Paralleling, IntelliMOS, Inter-Chip Connectivity, JitterBlocker, Knob-on-Display, MarginLink, maxCrypto, maxView, memBrain, Mindi, MiWi, MPASM, MPF, MPLAB Certified logo, MPLIB, MPLINK, mSiC, MultiTRAK, NetDetach, Omniscient Code Generation, PICDEM, PICDEM.net, PICkit, PICtail, Power MOS IV, Power MOS 7, PowerSmart, PureSilicon, QMatrix, REAL ICE, Ripple Blocker, RTAX, RTG4, SAM-ICE, Serial Quad I/O, simpleMAP, SimpliPHY, SmartBuffer, SmartHLS, SMART-I.S., storClad, SQI, SuperSwitcher, SuperSwitcher II, Switchtec, SynchroPHY, Total Endurance, Trusted Time, TSHARC, Turing, USBCheck, VariSense, VectorBlox, VeriPHY, ViewSpan, WiperLock, XpressConnect, and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

The Adaptec logo, Frequency on Demand, Silicon Storage Technology, and Symmcom are registered trademarks of Microchip Technology Inc. in other countries.

GestIC is a registered trademark of Microchip Technology Germany II GmbH & Co. KG, a subsidiary of Microchip Technology Inc., in other countries.

© 2024 Microchip Technology Inc. and its subsidiaries

All other trademarks mentioned herein are property of their respective companies.

© 2024, Microchip Technology Incorporated and its subsidiaries. All Rights Reserved.

ISBN: 978-1-6683-3853-7

Quality Management System

For information regarding Microchip's Quality Management Systems, please visit www.microchip.com/quality.

© 2024 Microchip Technology Inc. and its subsidiaries

Worldwide Sales and Service

AMERICAS	ASIA/PACIFIC	ASIA/PACIFIC	EUROPE
Corporate Office	**Australia - Sydney**	**India - Bangalore**	**Austria - Wels**
2355 West Chandler Blvd.	Tel: 61-2-9868-6733	Tel: 91-80-3090-4444	Tel: 43-7242-2244-39
Chandler, AZ 85224-6199	**China - Beijing**	**India - New Delhi**	Fax: 43-7242-2244-393
Tel: 480-792-7200	Tel: 86-10-8569-7000	Tel: 91-11-4160-8631	**Denmark - Copenhagen**
Fax: 480-792-7277	**China - Chengdu**	**India - Pune**	Tel: 45-4485-5910
Technical Support:	Tel: 86-28-8665-5511	Tel: 91-20-4121-0141	Fax: 45-4485-2829
www.microchip.com/support	**China - Chongqing**	**Japan - Osaka**	**Finland - Espoo**
Web Address:	Tel: 86-23-8980-9588	Tel: 81-6-6152-7160	Tel: 358-9-4520-820
www.microchip.com	**China - Dongguan**	**Japan - Tokyo**	**France - Paris**
Atlanta	Tel: 86-769-8702-9880	Tel: 81-3-6880- 3770	Tel: 33-1-69-53-63-20
Duluth, GA	**China - Guangzhou**	**Korea - Daegu**	Fax: 33-1-69-30-90-79
Tel: 678-957-9614	Tel: 86-20-8755-8029	Tel: 82-53-744-4301	**Germany - Garching**
Fax: 678-957-1455	**China - Hangzhou**	**Korea - Seoul**	Tel: 49-8931-9700
Austin, TX	Tel: 86-571-8792-8115	Tel: 82-2-554-7200	**Germany - Haan**
Tel: 512-257-3370	**China - Hong Kong SAR**	**Malaysia - Kuala Lumpur**	Tel: 49-2129-3766400
Boston	Tel: 852-2943-5100	Tel: 60-3-7651-7906	**Germany - Heilbronn**
Westborough, MA	**China - Nanjing**	**Malaysia - Penang**	Tel: 49-7131-72400
Tel: 774-760-0087	Tel: 86-25-8473-2460	Tel: 60-4-227-8870	**Germany - Karlsruhe**
Fax: 774-760-0088	**China - Qingdao**	**Philippines - Manila**	Tel: 49-721-625370
Chicago	Tel: 86-532-8502-7355	Tel: 63-2-634-9065	**Germany - Munich**
Itasca, IL	**China - Shanghai**	**Singapore**	Tel: 49-89-627-144-0
Tel: 630-285-0071	Tel: 86-21-3326-8000	Tel: 65-6334-8870	Fax: 49-89-627-144-44
Fax: 630-285-0075	**China - Shenyang**	**Taiwan - Hsin Chu**	**Germany - Rosenheim**
Dallas	Tel: 86-24-2334-2829	Tel: 886-3-577-8366	Tel: 49-8031-354-560
Addison, TX	**China - Shenzhen**	**Taiwan - Kaohsiung**	**Israel - Ra'anana**
Tel: 972-818-7423	Tel: 86-755-8864-2200	Tel: 886-7-213-7830	Tel: 972-9-744-7705
Fax: 972-818-2924	**China - Suzhou**	**Taiwan - Taipei**	**Italy - Milan**
Detroit	Tel: 86-186-6233-1526	Tel: 886-2-2508-8600	Tel: 39-0331-742611
Novi, MI	**China - Wuhan**	**Thailand - Bangkok**	Fax: 39-0331-466781
Tel: 248-848-4000	Tel: 86-27-5980-5300	Tel: 66-2-694-1351	**Italy - Padova**
Houston, TX	**China - Xian**	**Vietnam - Ho Chi Minh**	Tel: 39-049-7625286
Tel: 281-894-5983	Tel: 86-29-8833-7252	Tel: 84-28-5448-2100	**Netherlands - Drunen**
Indianapolis	**China - Xiamen**		Tel: 31-416-690399
Noblesville, IN	Tel: 86-592-2388138		Fax: 31-416-690340
Tel: 317-773-8323	**China - Zhuhai**		**Norway - Trondheim**
Fax: 317-773-5453	Tel: 86-756-3210040		Tel: 47-72884388
Tel: 317-536-2380			**Poland - Warsaw**
Los Angeles			Tel: 48-22-3325737
Mission Viejo, CA			**Romania - Bucharest**
Tel: 949-462-9523			Tel: 40-21-407-87-50
Fax: 949-462-9608			**Spain - Madrid**
Tel: 951-273-7800			Tel: 34-91-708-08-90
Raleigh, NC			Fax: 34-91-708-08-91
Tel: 919-844-7510			**Sweden - Gothenberg**
New York, NY			Tel: 46-31-704-60-40
Tel: 631-435-6000			**Sweden - Stockholm**
San Jose, CA			Tel: 46-8-5090-4654
Tel: 408-735-9110			**UK - Wokingham**
Tel: 408-436-4270			Tel: 44-118-921-5800
Canada - Toronto			Fax: 44-118-921-5820
Tel: 905-695-1980			
Fax: 905-695-2078			

© 2024 Microchip Technology Inc. and its subsidiaries

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Microchip:

MPLAD30KP24AE3 MPLAD30KP51CAE3 MPLAD30KP30CA MPLAD30KP110CA MPLAD30KP350CAE3 MPLAD30KP24A MPLAD30KP30CAE3 MPLAD30KP51CA MAPLAD30KP45Ae3 MPLAD30KP400AE3 MAPLAD30KP51Ae3 MPLAD30KP75CAE3 MAPLAD30KP130CA MAPLAD30KP30Ae3 MAPLAD30KP400CAe3 MPLAD30KP150AE3 MAPLAD30KP150CA MPLAD30KP350AE3 MPLAD30KP58AE3 MPLAD30KP43A MAPLAD30KP22CA MAPLAD30KP150A MAPLAD30KP220Ae3 MAPLAD30KP180CAe3 MAPLAD30KP54CA MPLAD30KP85CAE3 MAPLAD30KP45CA MPLAD30KP400CAE3 MPLAD30KP350A MPLAD30KP15AE3 MAPLAD30KP48Ae3 MPLAD30KP300CAE3 MAPLAD30KP100A MAPLAD30KP60Ae3 MPLAD30KP45A MAPLAD30KP200Ae3 MPLAD30KP33A MPLAD30KP180A MAPLAD30KP150CAe3 MPLAD30KP280A MAPLAD30KP64CAe3 MAPLAD30KP40CA MAPLAD30KP300A MAPLAD30KP28CAe3 MAPLAD30KP260CAe3 MAPLAD30KP350Ae3 MPLAD30KP64A MPLAD30KP54CAE3 MPLAD30KP17A MAPLAD30KP26Ae3 MAPLAD30KP300Ae3 MPLAD30KP100AE3 MAPLAD30KP280A MPLAD30KP40A MPLAD30KP48CAE3 MAPLAD30KP160A MAPLAD30KP58CA MPLAD30KP280CA MAPLAD30KP15A MAPLAD30KP75CA MPLAD30KP70CAE3 MPLAD30KP75CA MPLAD30KP16AE3 MPLAD30KP20CAE3 MPLAD30KP15A MPLAD30KP90A MPLAD30KP200CAE3 MPLAD30KP180AE3 MAPLAD30KP48A MPLAD30KP30AE3 MAPLAD30KP28Ae3 MPLAD30KP17CA MAPLAD30KP22Ae3 MPLAD30KP14CA MAPLAD30KP45CAe3 MAPLAD30KP70A MAPLAD30KP40Ae3 MPLAD30KP300AE3 MPLAD30KP300A MPLAD30KP85CA MPLAD30KP33AE3 MAPLAD30KP280CAe3 MPLAD30KP58CAE3 MAPLAD30KP24Ae3 MAPLAD30KP24CA MAPLAD30KP18CAe3 MAPLAD30KP64A MPLAD30KP28CAE3 MAPLAD30KP400CA MAPLAD30KP40A MAPLAD30KP51CAe3 MPLAD30KP350CA MPLAD30KP48A MPLAD30KP26AE3 MPLAD30KP28CA MAPLAD30KP17CAe3 MAPLAD30KP33Ae3 MAPLAD30KP100CA MAPLAD30KP58A MAPLAD30KP40CAe3