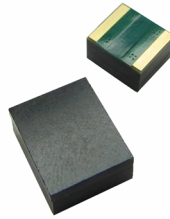


# MOVS4032

## Surface mount metal oxide varistor



### Product features

- Surface mount metal oxide varistor (MOV)
- 4032 (10182 metric) package size
- High transient current capability
- Plastic package meets UL 94 V-0
- Meets UL1449 4th edition
- Moisture sensitivity level (MSL): 1

### Applications

- Power supply
- Home appliance
- Industrial equipment
- Telecommunication or telephone system
- Vac driven & COB LED lighting

### Agency information

- cURus recognized:  
File: E340782, Guide VZCA2 and VZCA8



### Environmental compliance



### Ordering part number

**MOV S 4032 V011**

Family name \_\_\_\_\_  
Type \_\_\_\_\_  
Size \_\_\_\_\_  
Working voltage ( $V_{ms}$ ) \_\_\_\_\_

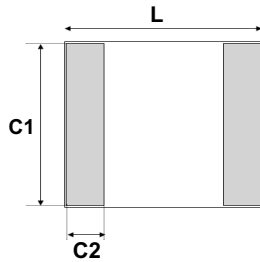
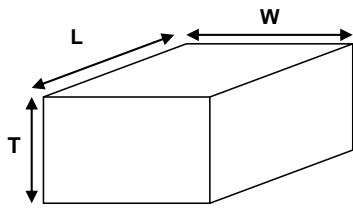
Electrical characteristics (+25 °C)

Part number	Working voltage		Varistor voltage @ 1 mAdc $V_v$ (V) typical	Leakage current @ $V_v$ * 80% (at initial state) IL ( $\mu$ A) maximum	Clamping voltage 8/20 $\mu$ s $V_c$ (V) maximum	Peak current 8/20 $\mu$ s $i_{max}$ (A) maximum	Maximum energy (J) 10/1000 $\mu$ s	Rated power (W)	Typical capaci- tance (pF) 1.0 kHz	Component thickness T (mm) $\pm 0.3$
	$V_{rms}$ (V) maximum	$V_{dc}$ (V) maximum								
MOVS4032V011	11	14	16.2~19.8	50	40 @ 2.5 A	250	0.9	0.02	3500	3.2
MOVS4032V014	14	18	19.8~24.2	50	48 @ 2.5 A	250	1.1	0.02	2850	3.2
MOVS4032V017	17	22	24.3~29.7	50	60 @ 2.5 A	250	1.4	0.02	2350	3.2
MOVS4032V020	20	26	29.7~36.3	50	73 @ 2.5 A	250	1.7	0.02	1900	4.2
MOVS4032V025	25	31	35.1~42.9	50	80 @ 2.5 A	250	2.1	0.02	1300	4.2
MOVS4032V030	30	38	42.3~51.7	50	104 @ 2.5 A	250	2.5	0.02	1060	4.2
MOVS4032V035	35	45	50.4~61.6	50	123 @ 2.5 A	250	3.1	0.02	890	4.2
MOVS4032V040	40	56	61.2~74.8	50	145 @ 2.5 A	250	3.6	0.02	730	4.2
MOVS4032V050	50	66	73.8~90.2	50	135 @ 10 A	1200	5.5	0.25	490	3.2
MOVS4032V060	60	85	90~110	50	165 @ 10 A	1200	6.5	0.25	450	3.2
MOVS4032V075	75	102	108~132	50	200 @ 10 A	1200	7.8	0.25	400	4.2
MOVS4032V095	95	127	135~165	50	250 @ 10 A	1200	9.7	0.25	300	4.2
MOVS4032V120	120	160	170~207	50	300 @ 10 A	1200	11.7	0.25	190	4.2
MOVS4032V130	130	175	185~225	50	340 @ 10 A	1200	13	0.25	160	4.2
MOVS4032V140	140	180	198~242	50	360 @ 10 A	1200	14	0.25	150	4.2
MOVS4032V150	150	200	216~264	50	395 @ 10 A	1200	15	0.25	145	4.2
MOVS4032V180	180	230	255~311	50	455 @ 10 A	1200	18	0.25	125	4.2
MOVS4032V195	195	250	270~330	50	500 @ 10 A	1200	20	0.25	115	4.2
MOVS4032V210	210	275	297~363	50	550 @ 10 A	1200	23	0.25	105	4.2
MOVS4032V230	230	300	324~396	50	595 @ 10 A	1200	25	0.25	110	4.2
MOVS4032V250	250	330	351~429	50	650 @ 10 A	1200	25	0.25	105	4.2
MOVS4032V275	275	370	387~473	50	710 @ 10 A	1200	28	0.25	95	5.6
MOVS4032V300	300	385	423~517	50	775 @ 10 A	1200	30	0.25	90	5.6
MOVS4032V320	320	420	459~561	50	845 @ 10 A	1200	30	0.25	85	5.6
MOVS4032V360	360	470	522~638	50	925 @ 10 A	1200	30	0.25	80	5.6
MOVS4032V390	390	505	558~682	50	1025 @ 10 A	1200	33	0.25	75	5.6
MOVS4032V420	420	560	612~748	50	1120 @ 10 A	1200	33	0.25	70	5.6
MOVS4032V460	460	615	675~825	50	1240 @ 10 A	1200	65	0.25	65	5.6
MOVS4032V485	485	640	702~858	50	1290 @ 10 A	1200	65	0.25	60	5.6
MOVS4032V510	510	670	738~902	50	1355 @ 10 A	1200	65	0.25	55	5.6

$V_{RMS}/V_{DC}$  – Maximum operating voltage the varistor can maintain  
 $V_v$  – Voltage across the device measured at 1 mA DC current. Equivalent to  $V_b$ , “Breakdown Voltage”.  
 $V_c$  – Maximum peak voltage across the varistor measured at 8/20 us waveform.  
 $i_{max}$  – Maximum peak current which may be applied with 8/20 us waveform without device failure

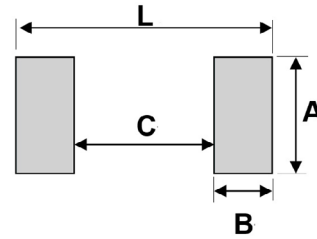
**Dimensions- mm**

Drawing not to scale



Bottom view

**Recommended pad layout**

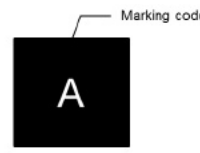


Dimension	Value
A	8.6
B	2.2
C	6.2
L	10.6

Dimension	Value	Note
L	10.1 ± 0.2	
W	8.2 ± 0.2	
T	3.2 ± 0.3 4.2 ± 0.3 5.6 ± 0.3	Refer to Electrical specifications table on pg 2
C1	7.4 ± 0.3	
C2	1.6 ± 0.3	

**Part marking**

Part number	Marking	Part number	Marking
MOVS4032V011	A	MOVS4032V150	P
MOVS4032V014	B	MOVS4032V180	Q
MOVS4032V017	C	MOVS4032V195	R
MOVS4032V020	D	MOVS4032V210	S
MOVS4032V025	E	MOVS4032V230	T
MOVS4032V030	F	MOVS4032V250	U
MOVS4032V035	G	MOVS4032V275	V
MOVS4032V040	H	MOVS4032V300	W
MOVS4032V050	I	MOVS4032V320	X
MOVS4032V060	J	MOVS4032V360	Y
MOVS4032V075	K	MOVS4032V390	Z
MOVS4032V095	L	MOVS4032V420	2
MOVS4032V120	M	MOVS4032V460	3
MOVS4032V130	N	MOVS4032V485	4
MOVS4032V140	O	MOVS4032V510	5



**General specifications**

Operating temperature: -40 °C to +85 °C

Storage temperature (on board): -40 °C to +85 °C

Solderability: +245 ± 5 °C, 3 ± 1 second

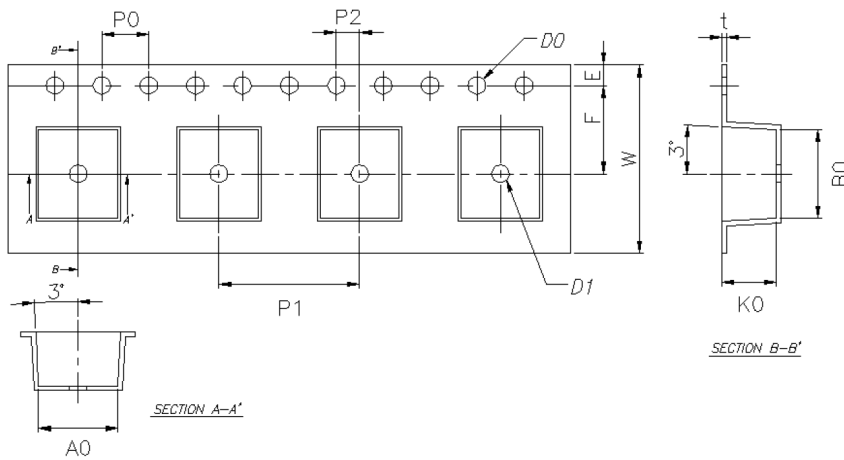
Solder leach resistance: +260 ± 5 °C, 10 ± 1 second

**Packaging information - mm**

900 pieces per reel for MOVS4032, T = 5.6 mm

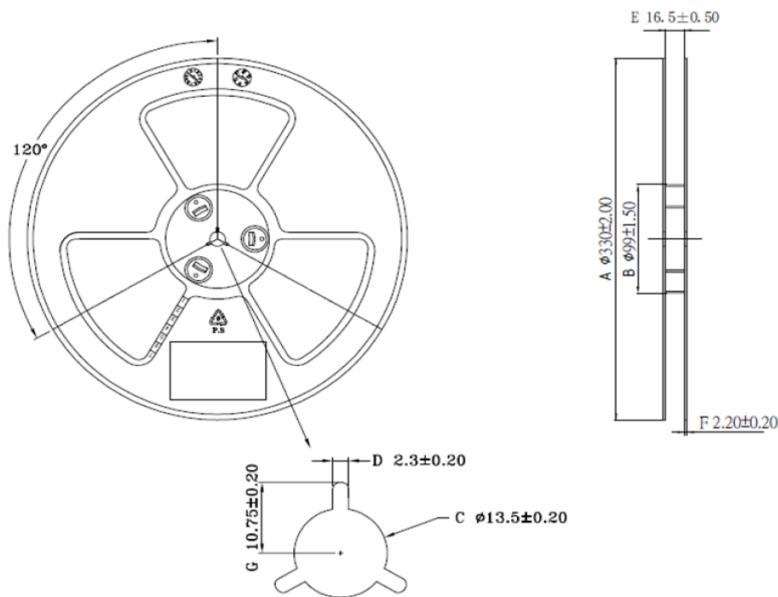
1100 pieces per reel for MOVS4032, T = 4.2 mm

1400 pieces per reel for MOVS4032, T = 3.2 mm



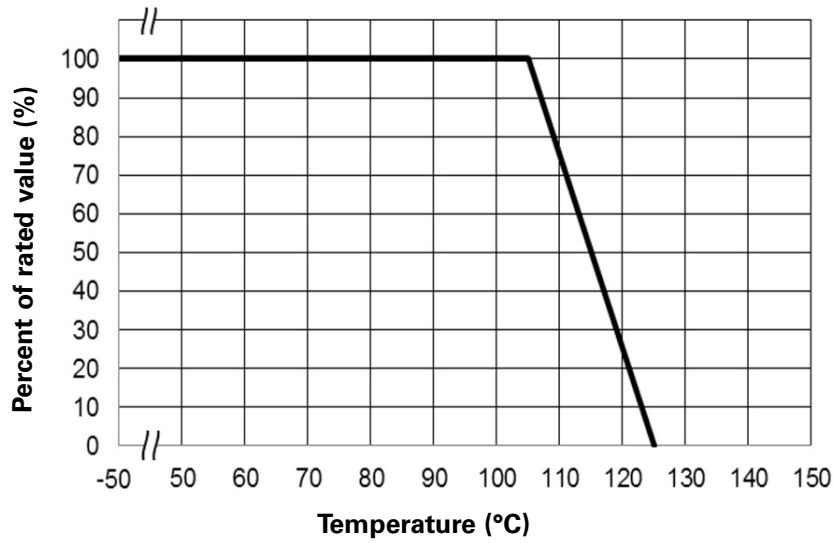
Dimension	Value
W	16.00 ± 0.30
E	1.75 ± 0.10
F	7.50 ± 0.15
D0	1.50 ± 0.10/-0.00
D1	1.50 ± 0.10/-0.00
P0	4.00 ± 0.10
P0 x10	40.0 ± 0.20
t	0.50 ± 0.05
A0	8.55 ± 0.15/-0.05
B0	10.45 ± 0.15/-0.05
K0	6.20 maximum
P1	12.00 ± 0.10
P2	2.00 ± 0.15

**Reel dimension - mm**

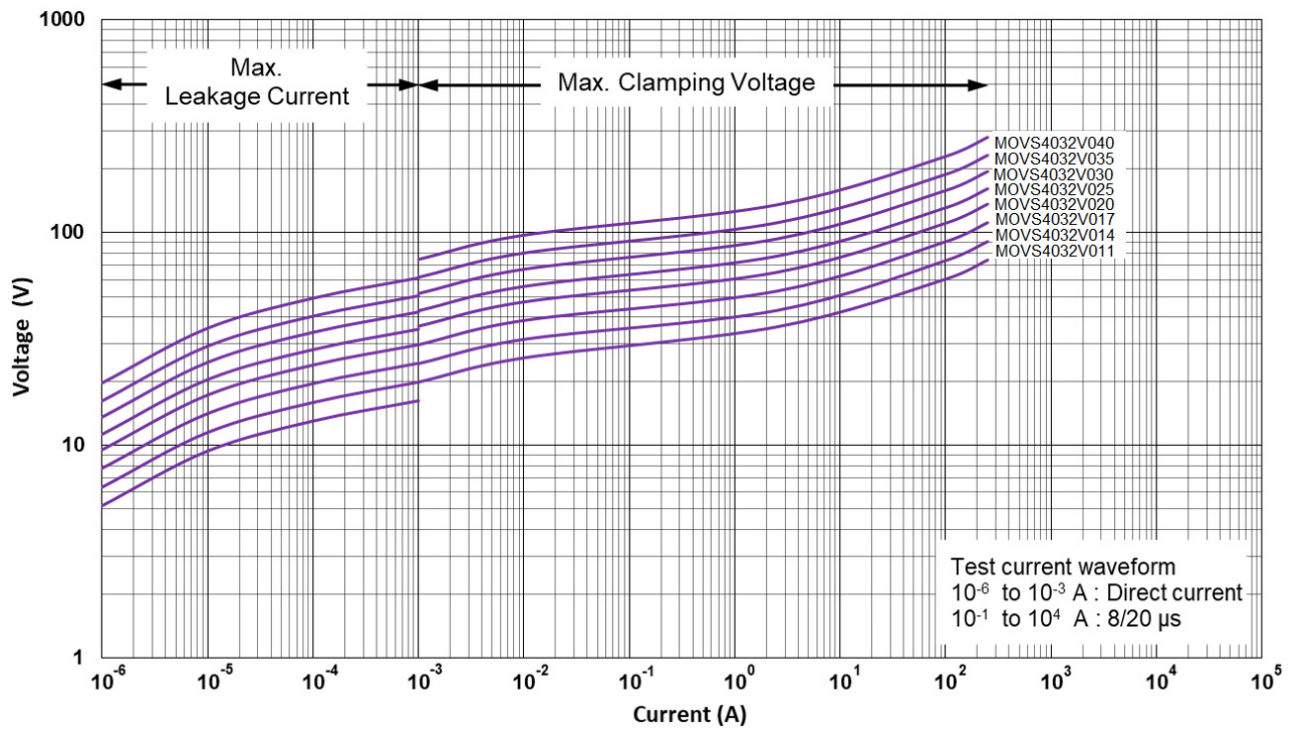


Dimension	Value
A	330 ± 2.00
B	99 ± 1.50
C	13.50 ± 0.20
D	2.30 ± 0.20
E	16.50 ± 0.50
F	2.20 ± 0.20
G	10.75 ± 0.20

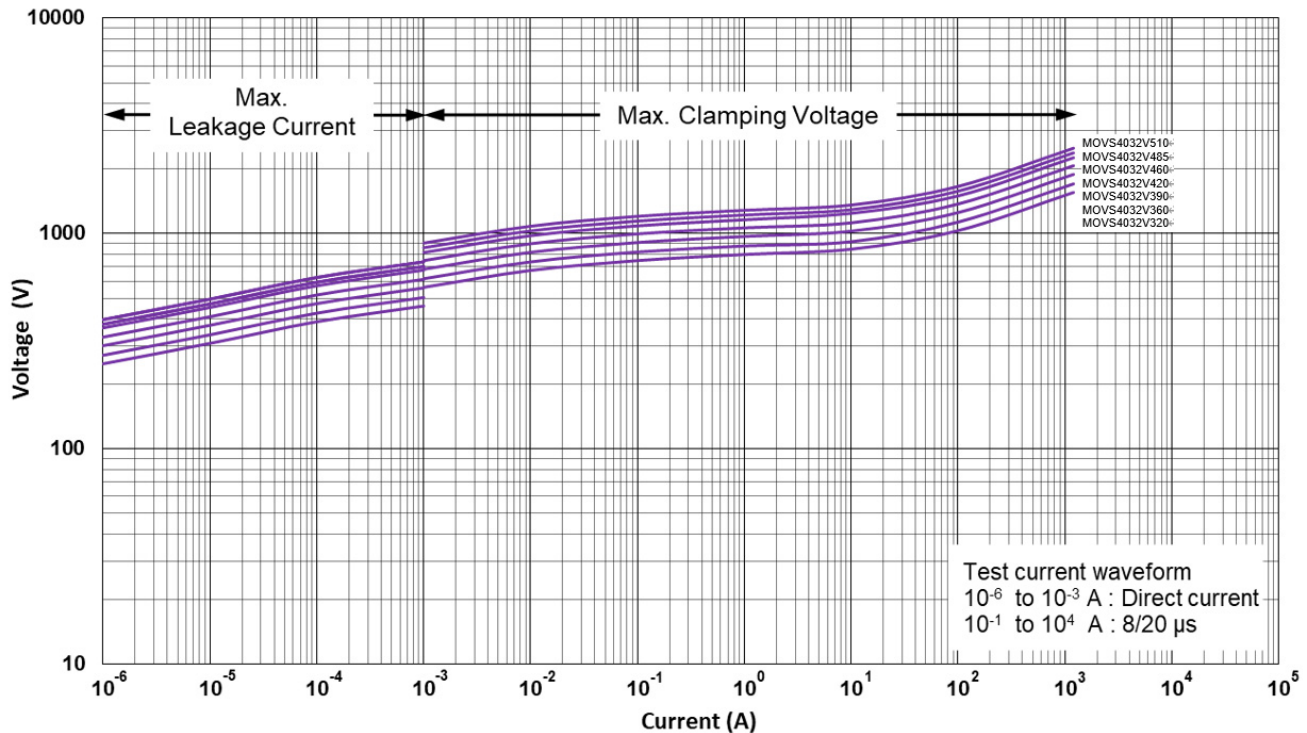
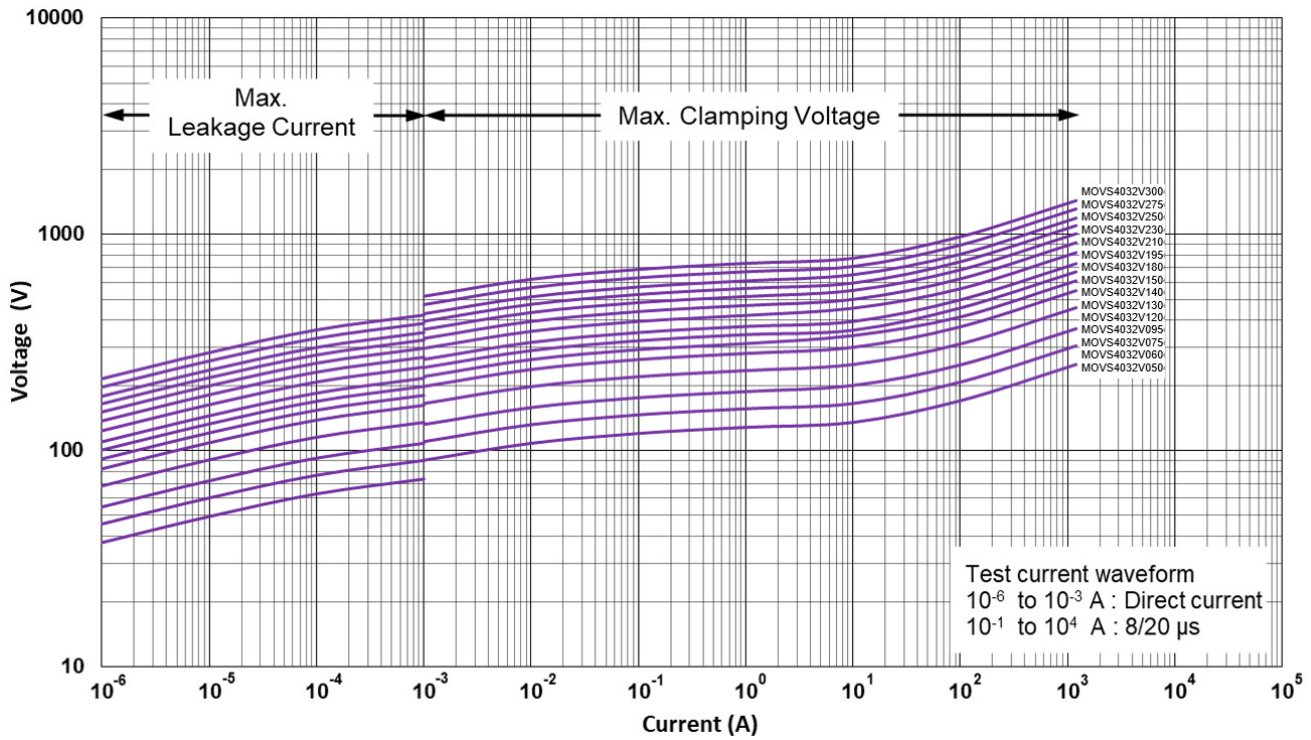
Peak current, energy and power derating curve



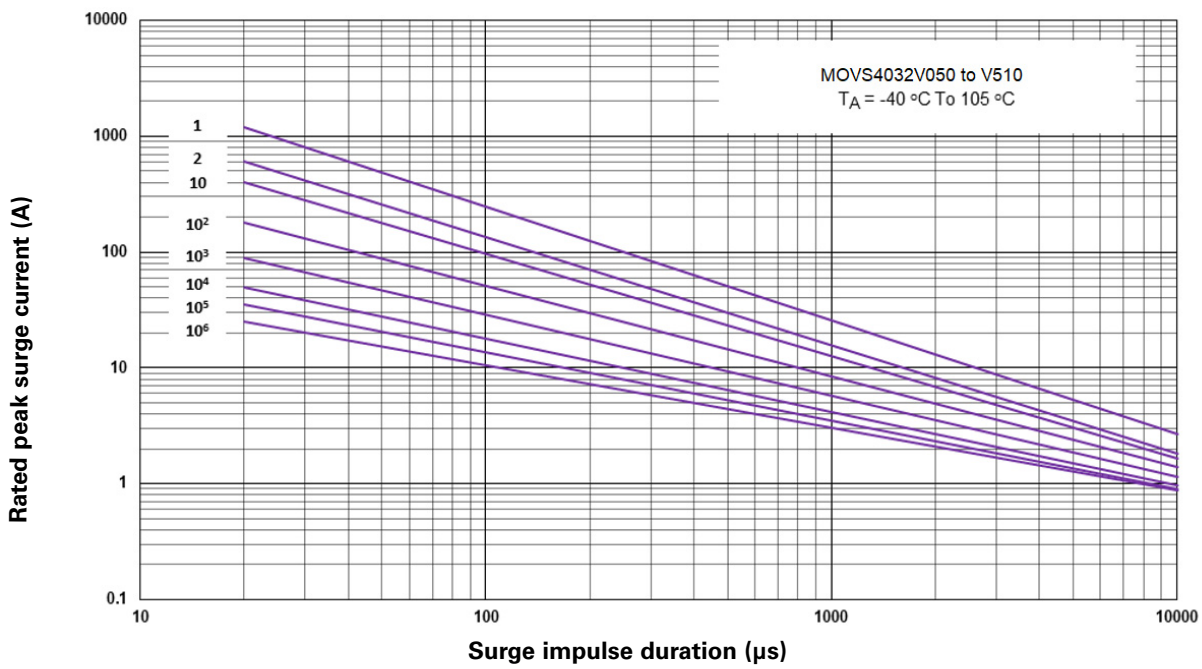
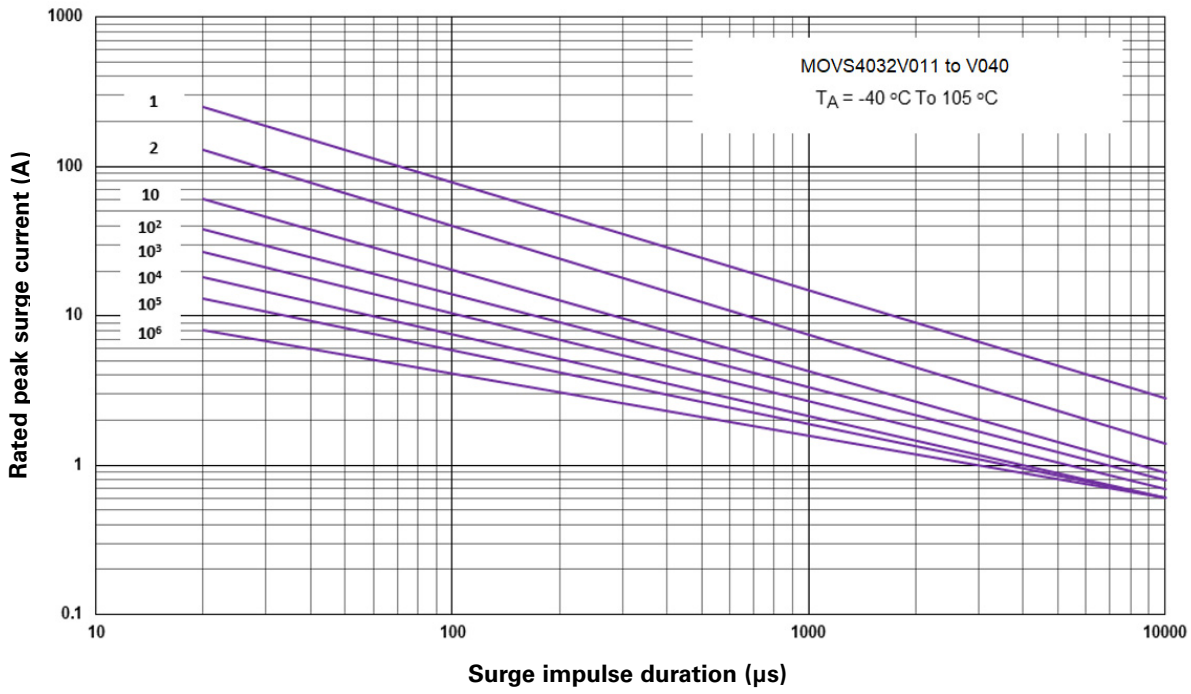
Voltage vs current (V-I) curves



Voltage vs current (V-I) curves (continued)



Pulse rating curve



Solder reflow profile

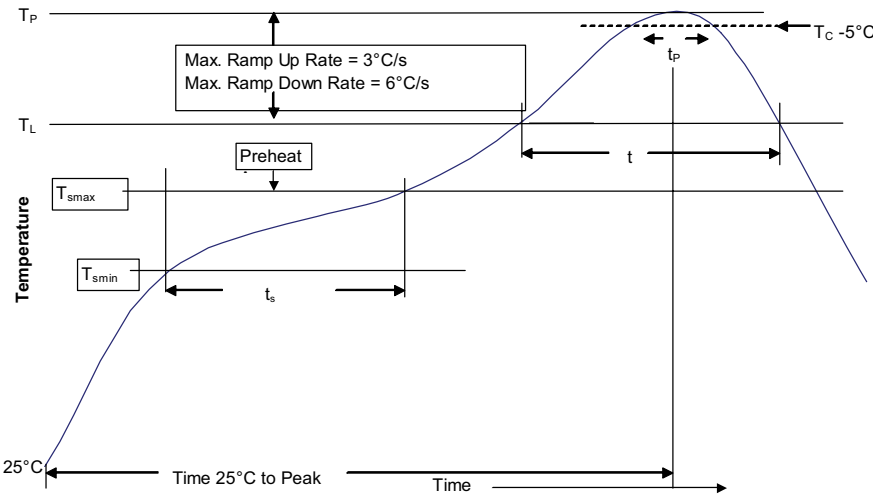


Table 1 - Standard SnPb solder ( $T_C$ )

Package thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq$ 350
<2.5 mm	235 °C	220 °C
$\geq$ 2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder ( $T_C$ )

Package thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	<ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul>	<ul style="list-style-type: none"> <li>100 °C</li> <li>150 °C</li> <li>60-120 seconds</li> </ul>
Ramp up rate $T_L$ to $T_p$	3 °C/ second max.	3 °C/ second max.
Liquidous temperature ( $T_L$ )	183 °C	217 °C
Time ( $t_L$ ) maintained above $T_L$	60-150 seconds	60-150 seconds
Peak package body temperature ( $T_p$ )*	Table 1	Table 2
Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_C$ )	20 seconds*	30 seconds*
Ramp-down rate ( $T_p$ to $T_L$ )	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

\* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

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