

SURFACE MOUNT 130 kW Transient Voltage Suppressor

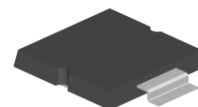
- High Reliability controlled devices
- Bidirectional (CA) construction
- 275 V standoff voltages (V_{WM})
- Fast response

DEVICES **MPLAD130KP275CA and MPLAD130KP275CV, e3**

LEVELS
M, MA, MX, MXL

FEATURES

- High reliability controlled devices with wafer fabrication and assembly lot traceability
- 100 % surge tested devices
- Low profile surface mount
- Low package inductance
- Available as either low clamp with "CV" suffix or normal clamping features with "CA" suffix
- Optional up screening available by replacing the M prefix with MA, MX or MXL. These prefixes specify various screening and conformance inspection options based on MIL-PRF-19500. Refer to [MicroNote 129](#) for more details on the screening options.
- Suppresses transients up to 130 kW1 @ 6.4/69 μ s
- Moisture classification is Level 1 with no dry pack required per IPC/JEDEC J-STD-020B
- RoHS compliant devices available by adding an "e3" suffix
- 3 σ lot norm screening performed on Standby Current I_D



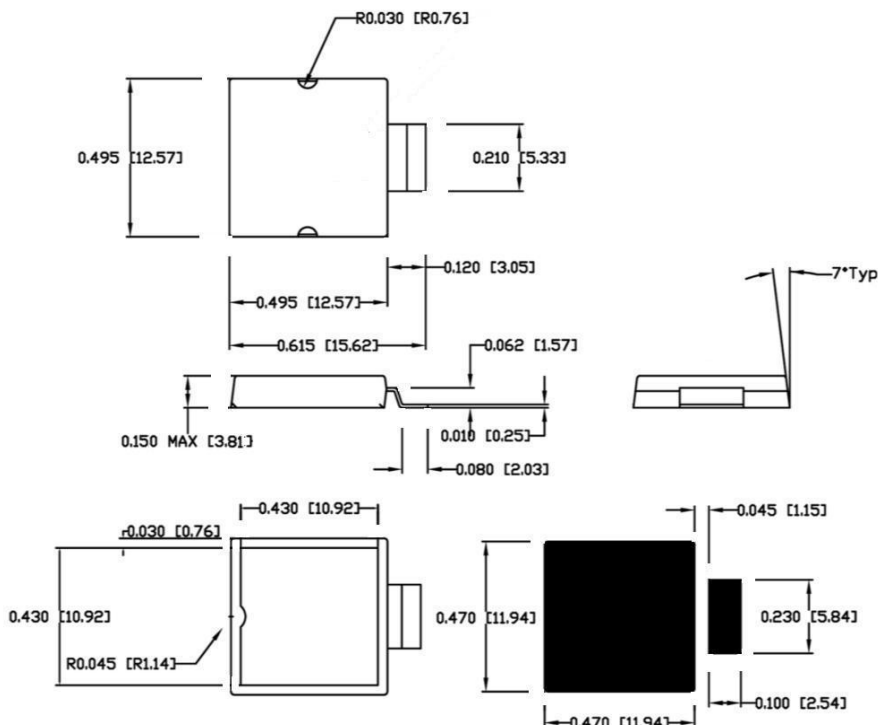
MAXIMUM RATINGS

- Peak Pulse Power dissipation at 25 °C: 130,0001 watts @ 6.4/69 μ s (also see Figure 1) with impulse repetition rate (duty factor) of 0.05% or less
- tclamping (0 volts to VBR min.): < 5 ns (theoretical)
- Operating and Storage temperature: -55 °C to +150 °C
- Thermal resistance: 0.5 °C/W junction to case or 50 °C/W junction to ambient when mounted on FR4 PC board with recommended mounting pad (see page 2) and 1oz Cu
- Steady-State Power dissipation: 250 watts at $T_C = 25$ °C with good heat sink, or 2.5 watts at $T_A = 25$ °C if mounted on FR4 PC board as described for thermal resistance
- Temperature Coefficient of voltage: 0.1 %/°C
- Solder temperatures: 260 °C for 10 s (maximum)

MECHANICAL AND PACKAGING

- Void-free transfer molded thermosetting epoxy body meeting UL94V-0
- Tin-Lead (90 % Sn, 10 % Pb) or RoHS (100 % Sn) compliant annealed matte-tin plating readily solderable per MIL-STD-750, method 2026
- Body marked with part number
- No Cathode band for Bi-directional devices
- Available in custom tape-and-reel or bulk packaging
- TAPE-AND-REEL Standard per EIA-481-B (add "TR" suffix to part number)
- Weight: 2.2 grams (approximately)

PACKAGE AND MOUNTING PAD DIMENSIONS Inches [mm]



SYMBOLS & DEFINITIONS

Symbol	Definition	Symbol	Definition
V_{WM}	Working Peak (Standoff) Voltage	I_{PP}	Peak Pulse Current
P_{PP}	Peak Pulse Power	V_C	Clamping Voltage
V_{BR}	Breakdown Voltage	I_{BR}	Breakdown Current for V_{BR}
I_D	Standby Current		

ELECTRICAL CHARACTERISTICS @ 25°C

Description	Symbol	Conditions	Min	Typ	Max	Unit
Breakdown Voltage	V_{BR}	$I_{BR} = 5mA$	300			V
Working Standoff Voltage	V_{WM}				275	V
Standby Current	I_D	$V_R = V_{WM}$			5	μA
Peak Pulse Current 1	I_{PP}	$tr=6.4\mu s, tp=69\mu s$			292	A
Clamping Voltage	V_C	$I_C = I_{PP}$			400	V
PLAD130KP275CV					445	V
PLAD130KP275CA						V

Note:

1) Also equivalent to 40 kW at a longer pulse of 10/1000 us with clamping voltages shown and $I_{PP} = 90A$

GRAPHS

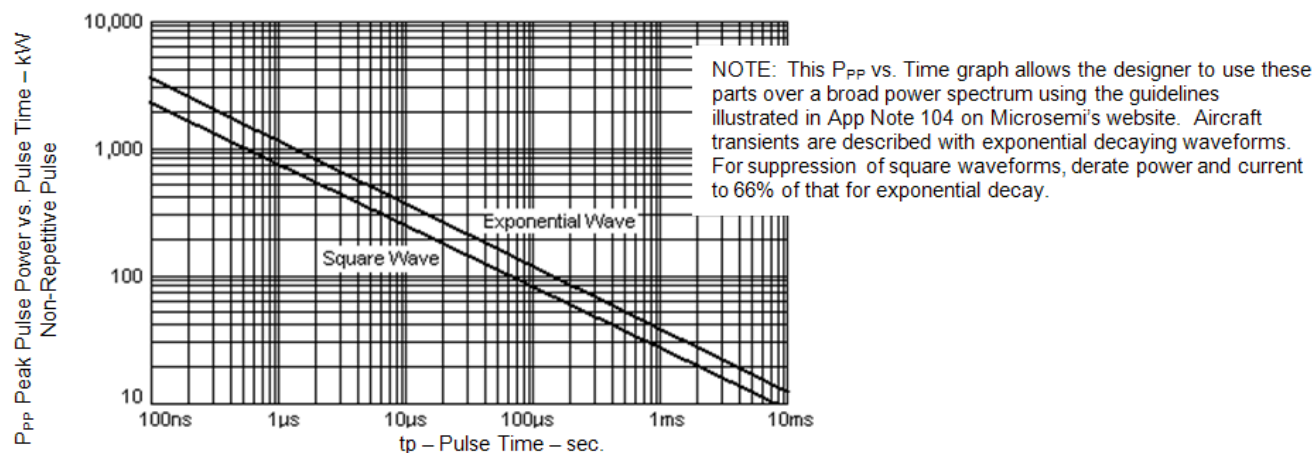


FIGURE 1
Peak Pulse Power vs. Pulse Time
To 50% of Exponentially Decaying Pulse

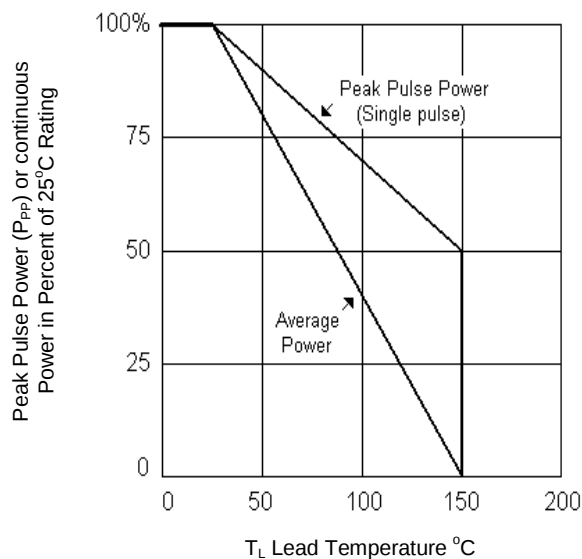


FIGURE 2
Derating Curve