



LDP24A

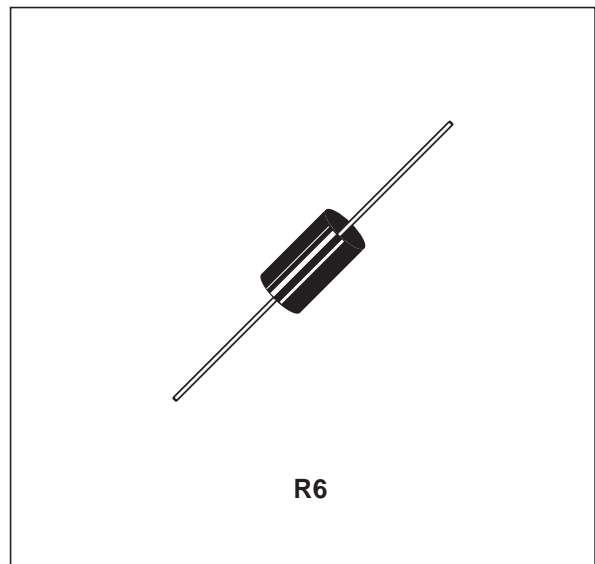
TRANSIENT PROTECTION LOAD DUMP

FEATURES

- TRANSIENT VOLTAGE SUPPRESSOR DIODE ESPECIALLY DESIGNED FOR LOAD DUMP PROTECTION
- COMPLIANT WITH MAIN STANDARDS SUCH AS:
ISO / DTR 7637

DESCRIPTION

Transient voltage suppressor diodes especially useful in protecting integrated circuits, MOS, hybrids and other overvoltages sensitive semiconductors and components.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{PP}	Peak pulse load dump overvoltage See note 1	$T_{amb} = 85^{\circ}C$	100	V
P	Power dissipation on infinite heatsink	$T_{amb} = 100^{\circ}C$	5	W
I_{FSM}	Non repetitive surge peak forward current.	T_j initial = $25^{\circ}C$ $t_p = 10$ ms	500	A
T_{stg}	Storage temperature range.		- 65 to + 175	$^{\circ}C$
T_j	Maximum operating temperature		175	$^{\circ}C$
T_L	Maximum lead temperature for soldering during 10 sec at 4 mm from case.		230	$^{\circ}C$

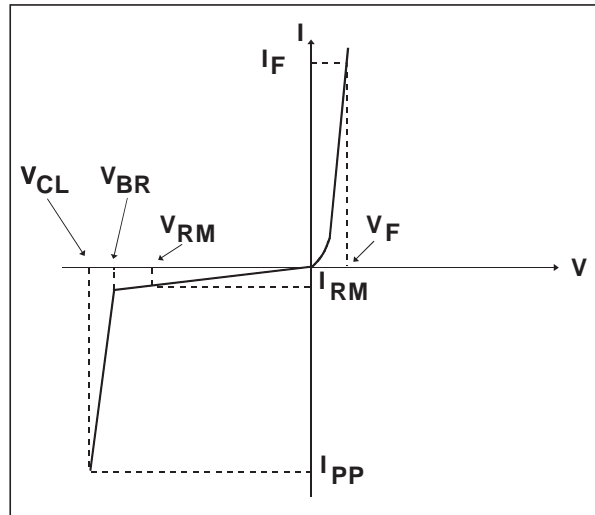
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction ambient thermal resistance on infinite heatsink $L_{lead} = 10$ mm	15	$^{\circ}C/W$

Note 1: For surges greater than the maximum values, the diode will present a short-circuit Anode - Cathode.

ELECTRICAL CHARACTERISTICS

Symbol	Parameter
V_{RM}	Stand-off voltage.
V_{BR}	Breakdown voltage.
V_{CL}	Clamping voltage.
I_{PP}	Peak pulse current.
αT	Temperature coefficient of V_{BR} .
C	Capacitance
I_{RM}	Leakage current at V_{RM}
V_F	Peak forward voltage drop



Symbol	Test Conditions	Min.	Typ.	Max.	Unit
I_{pp}	Pulse duration: 40ms	30			A
I_{RM}	$T_j = 25^\circ\text{C}$ $T_j = 85^\circ\text{C}$			50 300	μA μA
V_{BR}	$T_j = 25^\circ\text{C}$ $I_R = 1\text{mA}$	25		32	V
V_{CL}	$T_j = 85^\circ\text{C}$ see table1			40	V
αT				10	$10^{-4}/^\circ\text{C}$
C	$F = 1\text{MHz}$ $V_R = 0\text{V}$		8000		pF
V_F	$I_{FM} = 10\text{A}$		0.9		V

LOAD DUMP TEST GENERATOR CIRCUIT (SCHAFFNER NSG 506 C). Issued from ISO / DTR 7637.

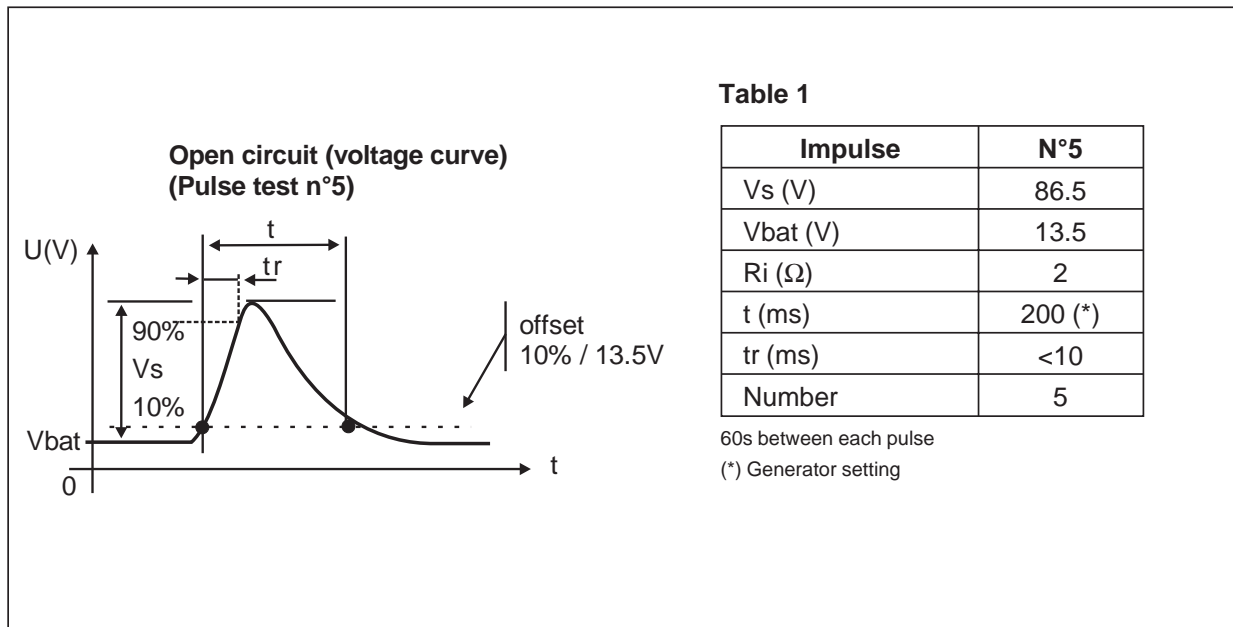


Fig. 1: Peak pulse power versus exponential pulse duration (T_j initial=85°C).

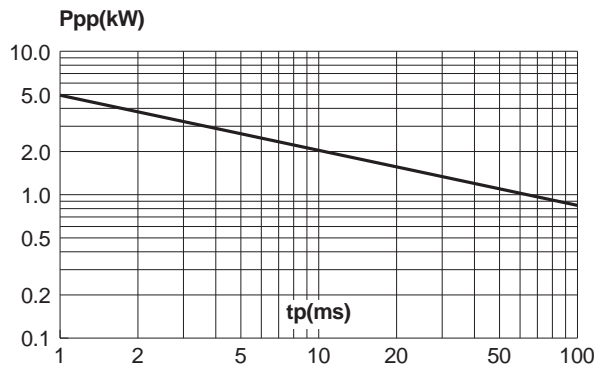


Fig. 2 : Peak pulse current versus exponential pulse duration (T_j initial=85°C).

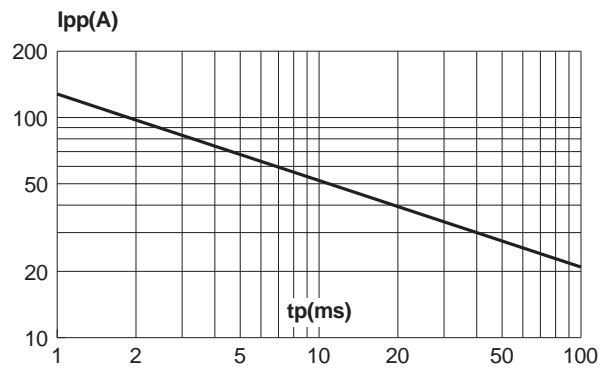


Fig. 3: Relative variation of peak pulse power versus junction temperature.

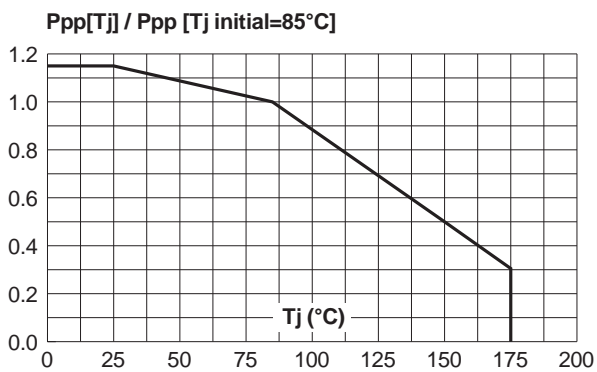


Fig. 4: Continuous power dissipation versus ambient temperature.

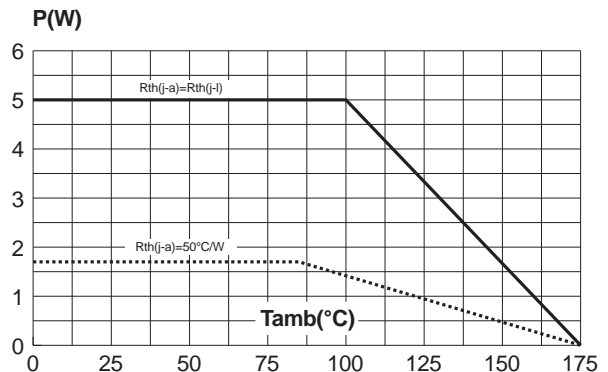


Fig. 5: Variation of thermal impedance junction to ambient versus pulse duration (printed circuit board FR4, $\epsilon(\text{Cu})=35\mu\text{m}$, $\text{SCu}=1\text{cm}^2$).

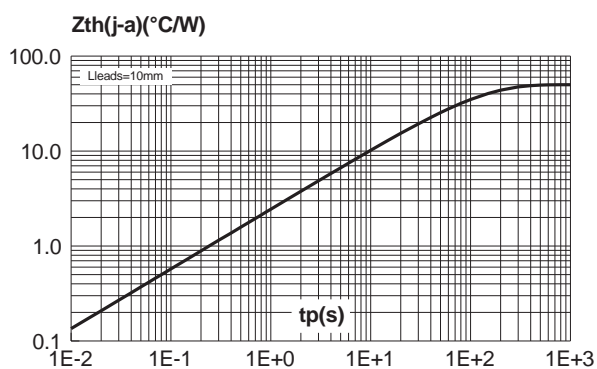
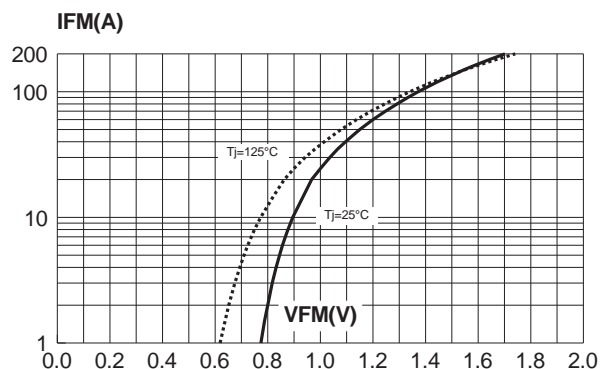


Fig. 6 : Peak forward voltage drop versus peak forward current (typical values).



LDP24A

Fig. 7: Non repetitive surge peak forward current versus sinusoidal pulse duration and corresponding value of I^2t .

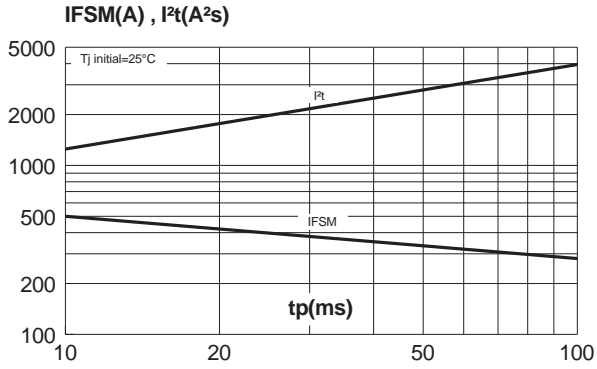
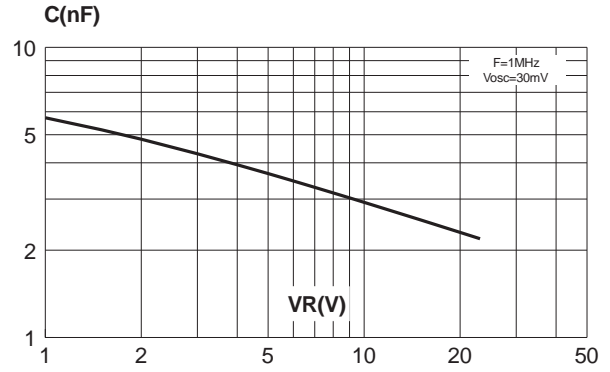
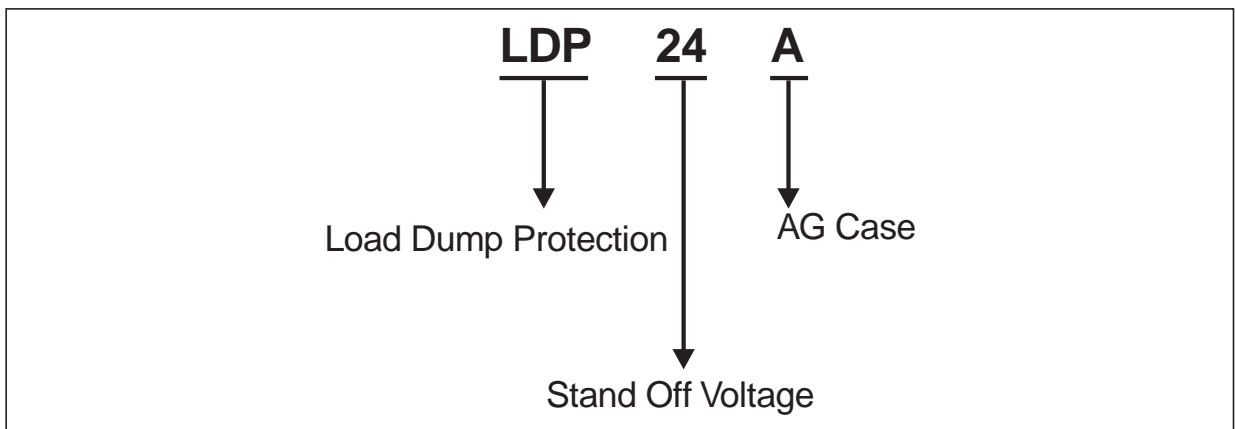


Fig. 8: Junction capacitance versus reverse applied voltage.

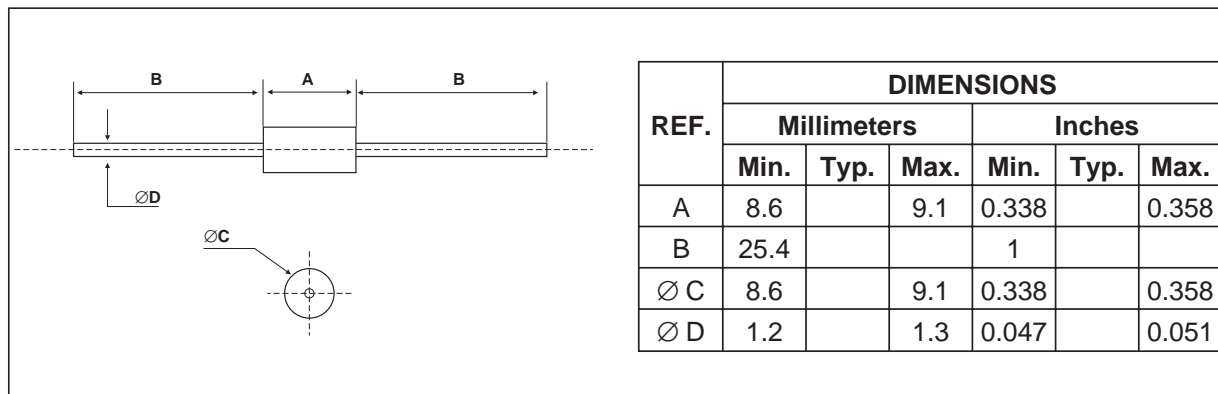


ORDER CODE



PACKAGE MECHANICAL DATA

R6 (Plastic)



Type	Marking	Package	Weight	Base qty	Delivery mode
LDP24A	LDP24A	R6	2.048 g	100	Ammopack
LDP24ARL	LDP24A	R6	2.048 g	1000	Tape & Reel

- Resin meets UL94-V0

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics.

All other names are the property of their respective owners.

© 2003 STMicroelectronics - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany -
 Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain -
 Sweden - Switzerland - United Kingdom - United States

www.st.com