

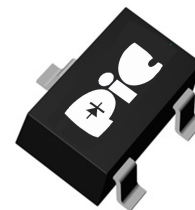
### ➤ General Description

PAE24CT23N in a small SOT23 SurfaceMounted Device (SMD) plastic package designed to protect two automotive Controller Area Network (CAN) bus lines from the damage caused by ElectroStatic Discharge (ESD) and other transients.

### ➤ Feature

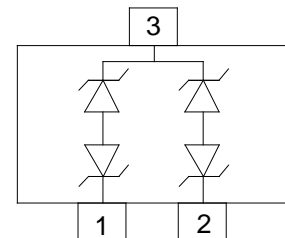
- Due to the integrated diode structure only one small SOT23 package is needed to protect two CAN bus lines
- Low leakage current:  $I_r < 10\text{nA}$
- Low clamping voltage:  $V_c = 50\text{V}$  at  $I_{PP} = 7\text{A}$
- Max. peak pulse power:  $PPP = 350\text{W}$  at  $t_p = 8/20\mu\text{s}$
- Working voltages : 24V
- ESD protection up to 30kV
- Small SMD plastic package
- ROHS compliant

### ➤ SOT-23



### ➤ Application

- CAN bus protection
- Automotive applications



### ➤ Protection solution to meet

- IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- IEC61000-4-5 (surge)  $I_{pp} = 8\text{A}$  at  $t_p = 8/20\mu\text{s}$

### ➤ Maximum Ratings (TA=25°C Unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P <sub>PPP</sub>	350	Watts
ESD Rating per IEC61000-4-2:	Contact	30	KV
	Air	30	
Lead Soldering Temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating Temperature Range	T <sub>J</sub>	-55 ~ 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ 150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

\*Other voltages may be available upon request.

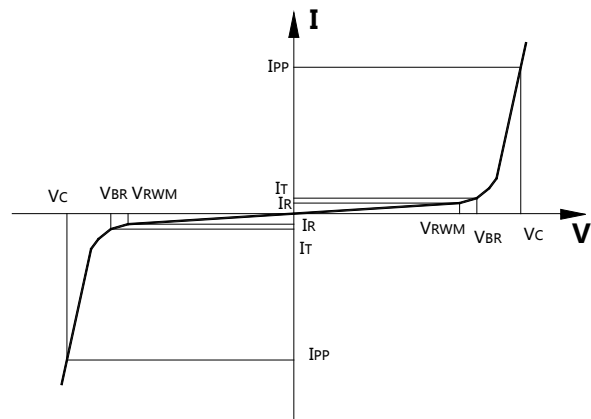
1. Non-repetitive current pulse, per Figure 1.

### ➤ Electrical Characteristics (TA=25°C Unless otherwise specified)

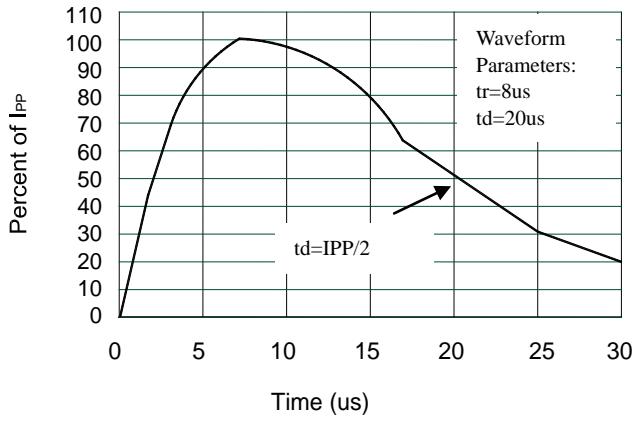
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V <sub>RWM</sub>	Reverse Working Voltage				24	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA,	26.2			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 24V,		1	10	nA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 1A, tp = 8/20μs,			34	V
		I <sub>PP</sub> = 8A, tp = 8/20μs,		50	66	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz,		28	40	pF

Junction capacitance is measured in VR=0V, F=1MHz

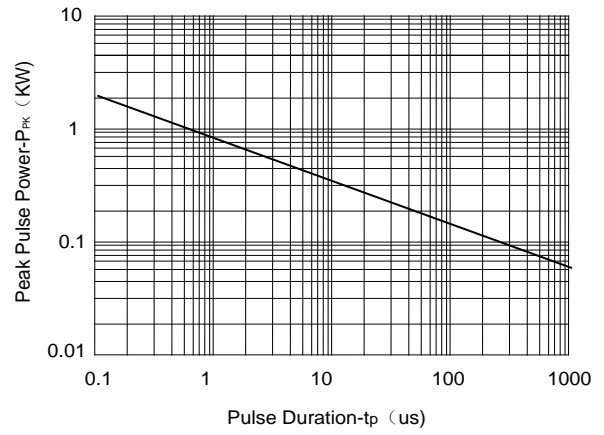
Symbol	Parameter
V <sub>RWM</sub>	Working Peak Reverse Voltage
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>T</sub>	Test Current
I <sub>RM</sub>	Leakage current at V <sub>RWM</sub>
I <sub>PP</sub>	Peak pulse current
C <sub>O</sub>	Off-state Capacitance
C <sub>J</sub>	Junction Capacitance



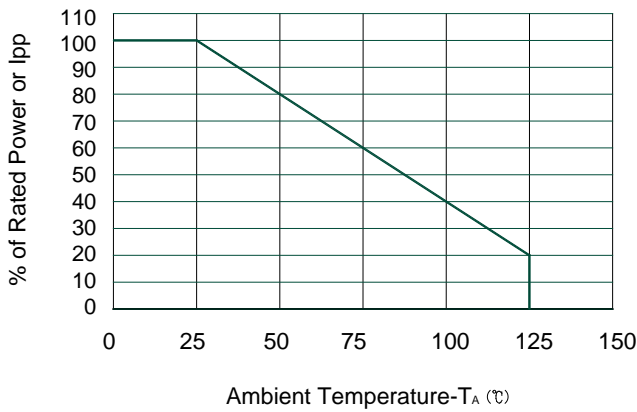
### ➤ Typical Characteristics



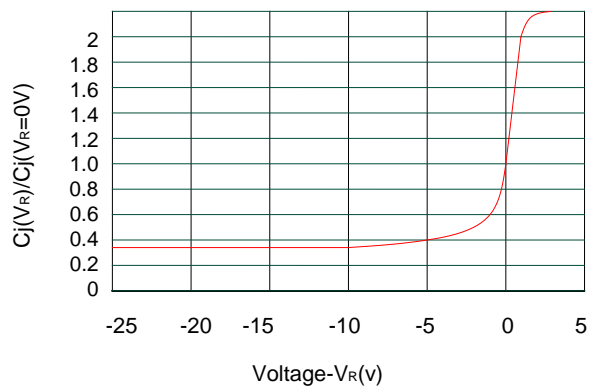
**Pulse Waveform**



**Non-Repetitive Peak Pulse Power vs. Pulse Time**



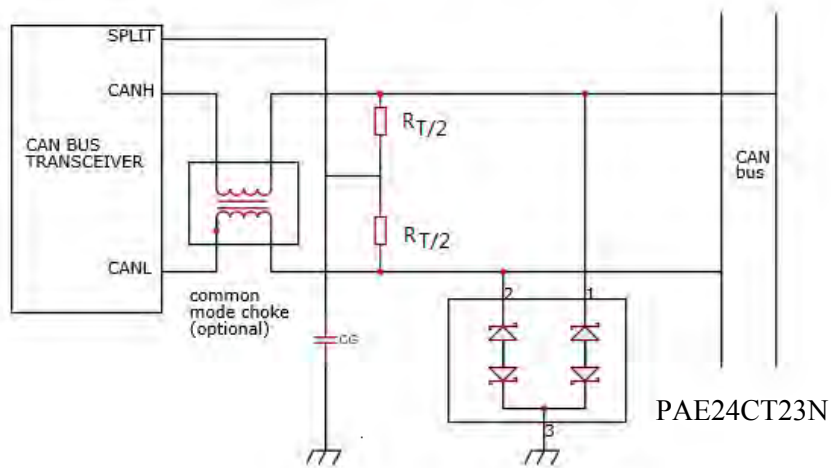
**Power Derating Curve**



**Junction Capacitance vs. Reverse Voltage**

### ➤ Typical applications

The PAE24CT23N is designed for the protection of two automotive CAN bus lines from the high-speed CAN bus and fault-tolerant CAN bus protection. The PAE24CT23N provides a capability of up to 350W per line for an 8/20 $\mu$ s waveform.



**Typical application: ESD protection of two automotive CAN bus lines**

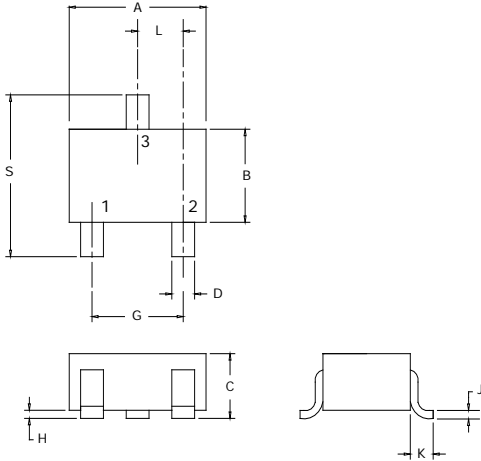
### ➤ Ordering Information

Part Number	Description	Quantity
PAE24CT23N	SOT-23 Reel	3000 pcs

### ➤ Package Information (SOT-23)

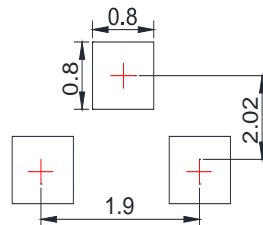
#### Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic. UL Flammability

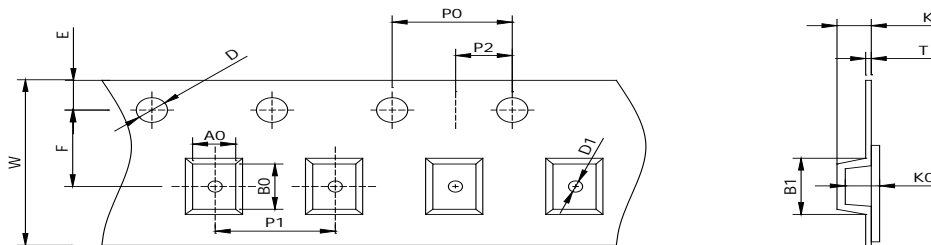


Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	2.80	3.00	0.110	0.118
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.30	0.50	0.011	0.020
G	1.8	2.0	0.071	0.078
H	0.0	0.100	0	0.004
J	0.080	0.15	0.003	0.006
K	0.550REF		0.022REF	
L	0.95TYP		0.037TYP	
S	2.25	2.550	0.089	0.100

#### Recommended Pad outline



#### SOT-23 Reel Dim



Package	Chip Size	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SOT-23	3.0×2.50×1.10	3.10×2.70×1.20	8mm	178mm(7")	3000	4mm	4mm
D0	D1	E	F	K	T	W	
1.5mm	1.0mm	1.75mm	3.5mm	1.10mm	0.2mm	8mm	

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