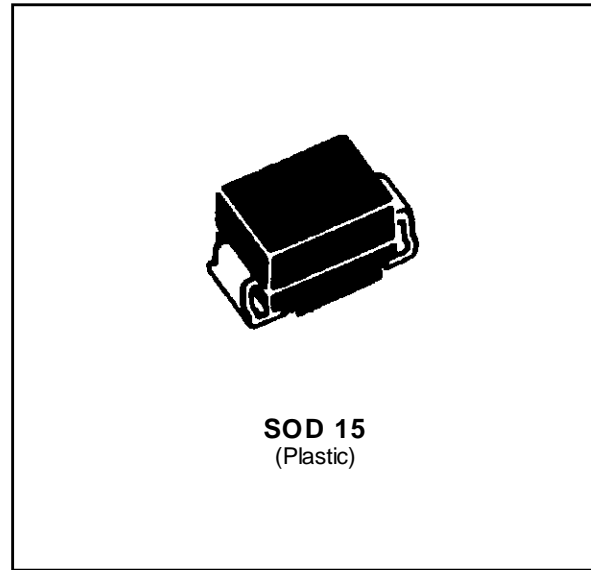


**TRISIL FOR LINE CARD PROTECTION**

**FEATURES**

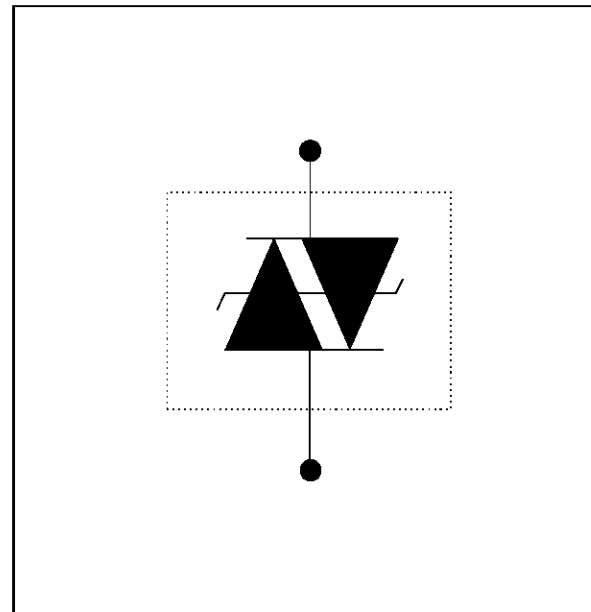
- BIDIRECTIONAL CROWBAR PROTECTION.
- PEAK PULSE CURRENT :
  - $I_{PP} = 75 \text{ A}$ , 10/1000  $\mu\text{s}$ .
- HOLDING CURRENT = 150 mA min
- BREAKDOWN VOLTAGE = 200 V min.
- BREAKOVER VOLTAGE = 290 V max.



**DESCRIPTION**

This protection device has been especially designed to protect subscriber line cards using SLICS without integrated ring generators. The SMTHBT200 device protects ring generator relays against transient overvoltages.

**SCHEMATIC DIAGRAM**



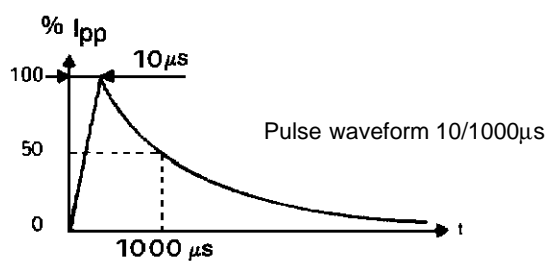
**IN ACCORDANCE WITH FOLLOWING STANDARDS :**

CCITT K17 - K20	{	10/700 $\mu\text{s}$	1.5 kV
		5/310 $\mu\text{s}$	38 A
VDE 0433	{	10/700 $\mu\text{s}$	2 kV
		5/200 $\mu\text{s}$	50 A
CNET	{	0.5/700 $\mu\text{s}$	1.5 kV
		0.2/310 $\mu\text{s}$	38 A

## SMTHBT200

### ABSOLUTE RATINGS (limiting values) ( $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$ )

Symbol	Parameter		Value	Unit
$I_{\text{PP}}$	Peak pulse current	10/1000 $\mu\text{s}$ 8/20 $\mu\text{s}$	75 150	A
$I_{\text{TSM}}$	Non repetitive surge peak on-state current	$t_p = 20 \text{ ms}$	30	A
$di/dt$	Critical rate of rise of on-state current	Non repetitive	100	A/ $\mu\text{s}$
$dv/dt$	Critical rate of rise of off-state voltage	67% $V_{\text{BR}}$	5	KV/ $\mu\text{s}$
$T_{\text{Stg}}$ $T_{\text{j}}$	Storage and operating junction temperature range		- 40 to + 150 150	$^{\circ}\text{C}$ $^{\circ}\text{C}$
$T_{\text{L}}$	Maximum lead temperature for soldering during 10 s.		260	$^{\circ}\text{C}$

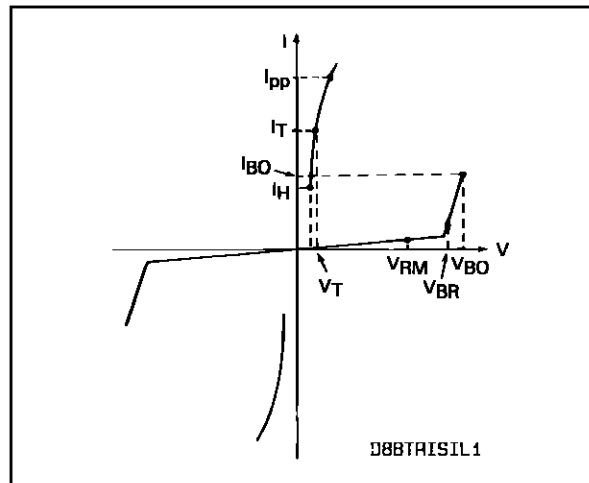


### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{\text{th}}(j-l)$	Junction to leads.	10	$^{\circ}\text{C}/\text{W}$
$R_{\text{th}}(j-a)$	Junction-to-ambient.	75	$^{\circ}\text{C}/\text{W}$

**ELECTRICAL CHARACTERISTICS**

Symbol	Parameter
$V_{RM}$	Stand-off voltage
$V_{BR}$	Breakdown voltage
$V_{BO}$	Breakover voltage
$I_H$	Holding current
$V_T$	On-state voltage
$I_{BO}$	Breakover current
$I_{PP}$	Peak pulse current



TYPE	$I_{RM}$ @ $V_{RM}$ max		$V_{BR}$ @ $I_R$ min		$V_{BO}$ @ $I_{BO}$ max min max note1			$I_H$ min note1	$V_T$ max note2	$C$ max note3
	$\mu A$	V	V	mA	V	mA	mA	mA	V	pF
SMTHBT200	10	180	200	1	290	150	800	150	8	200

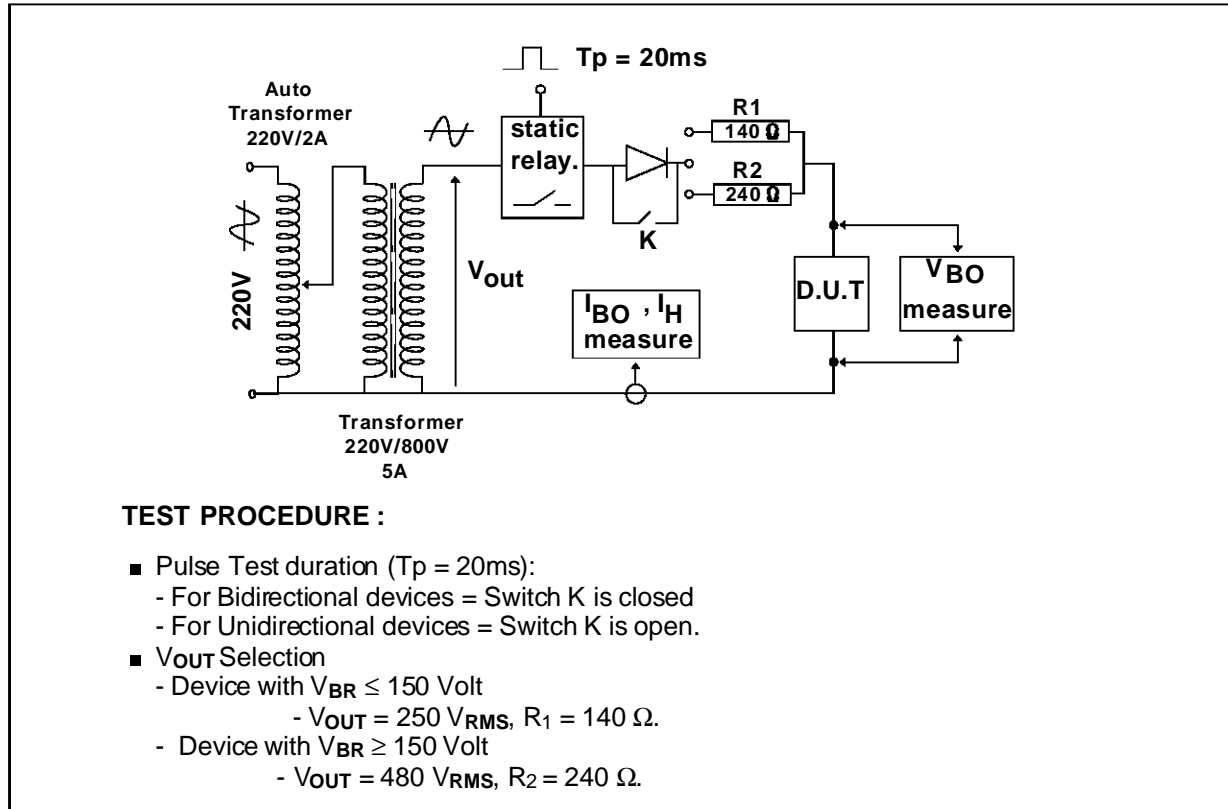
All parameters tested at 25°C, except where indicated

**Note 1 :** See the reference test circuit for  $I_H$ ,  $I_{BO}$  and  $V_{BO}$  parameters.

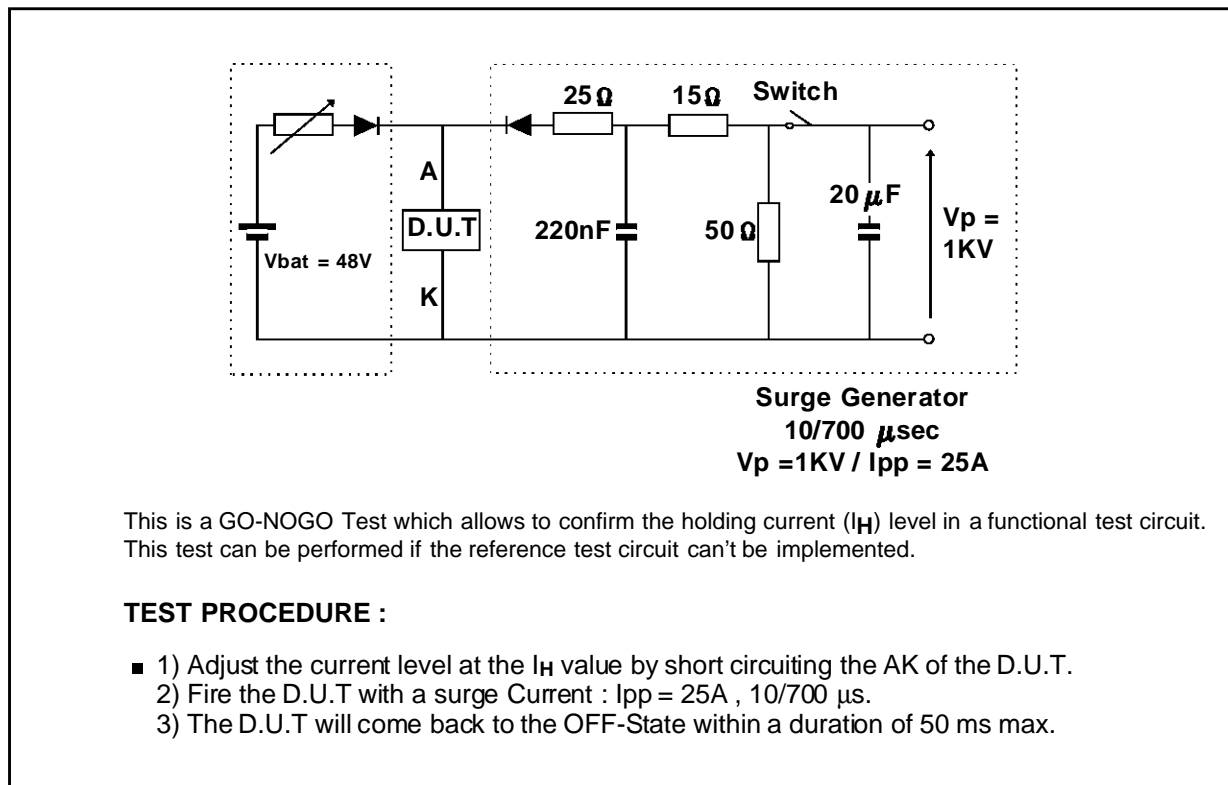
**Note 2 :** Square pulse  $T_p = 500 \mu s$  -  $I_T = 5A$ .

**Note 3 :**  $V_R = 1V$ ,  $F = 1MHz$ .

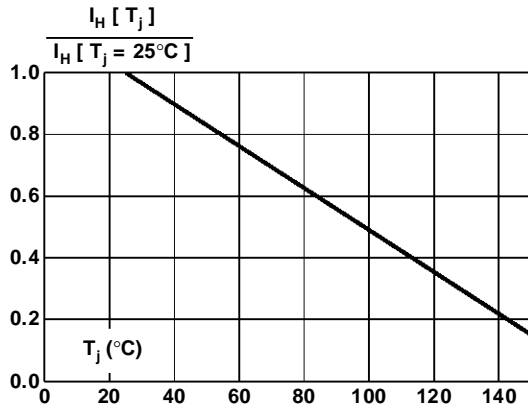
REFERENCE TEST CIRCUIT FOR  $I_H$ ,  $I_{BO}$  and  $V_{BO}$  parameters :



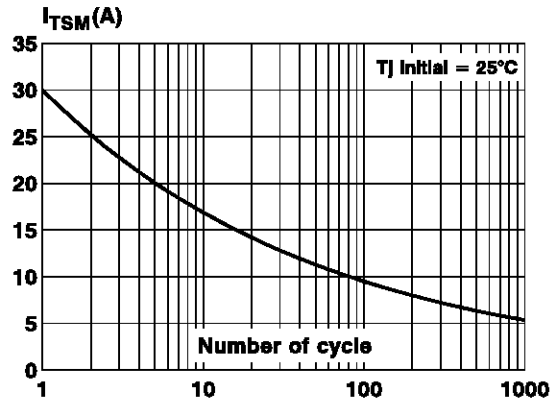
FUNCTIONAL HOLDING CURRENT ( $I_H$ ) TEST CIRCUIT =GO - NOGO TEST.



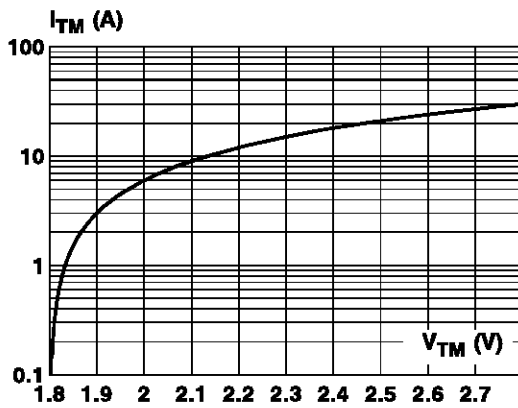
**Figure 1** : Relative variation of holding current versus junction temperature.



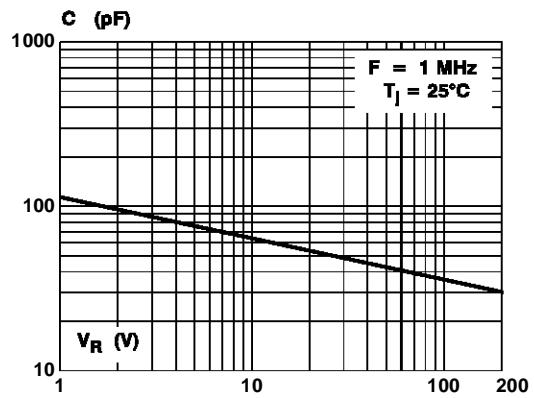
**Figure 2** : Non repetitive surge peak on state current versus number of cycles (1 cycle = 20



**Figure 3** : Peak on state voltage versus peak on state current (typical values).

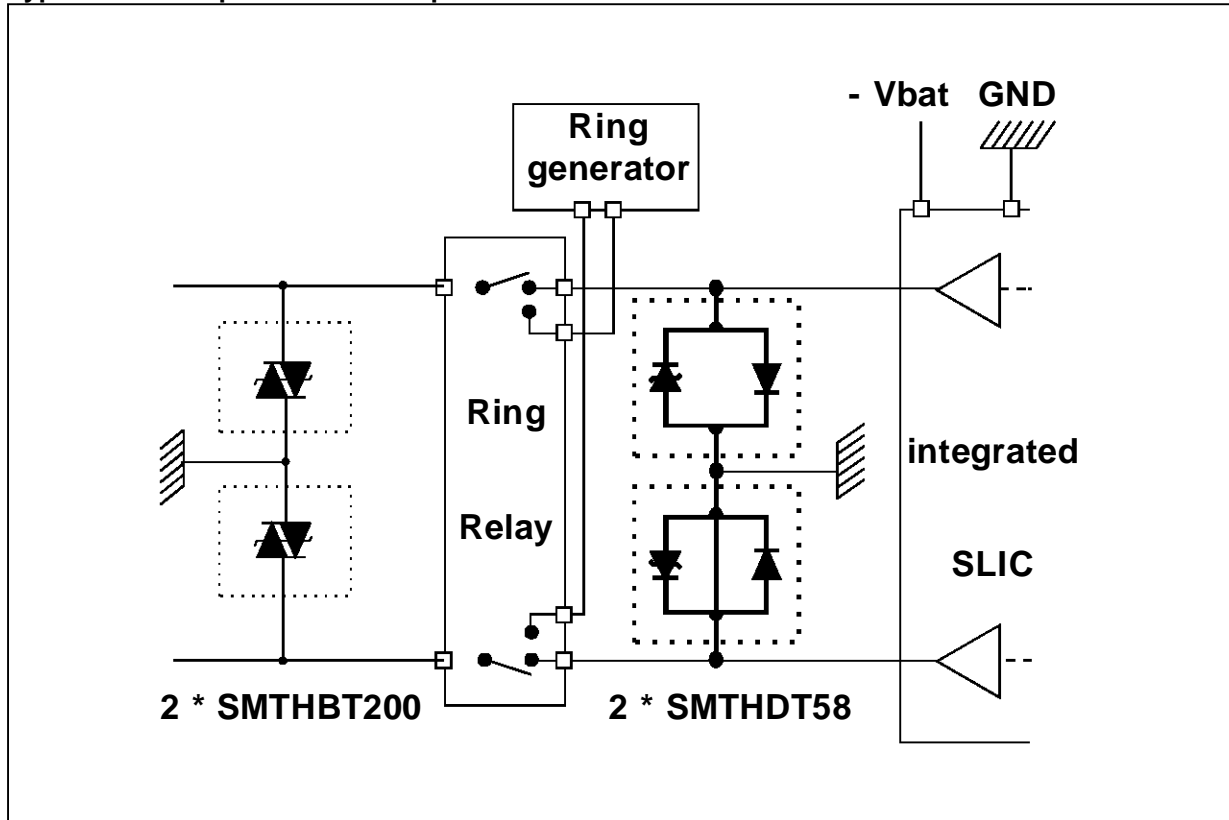


**Figure 5** : Capacitance versus reverse applied voltage (typical values).

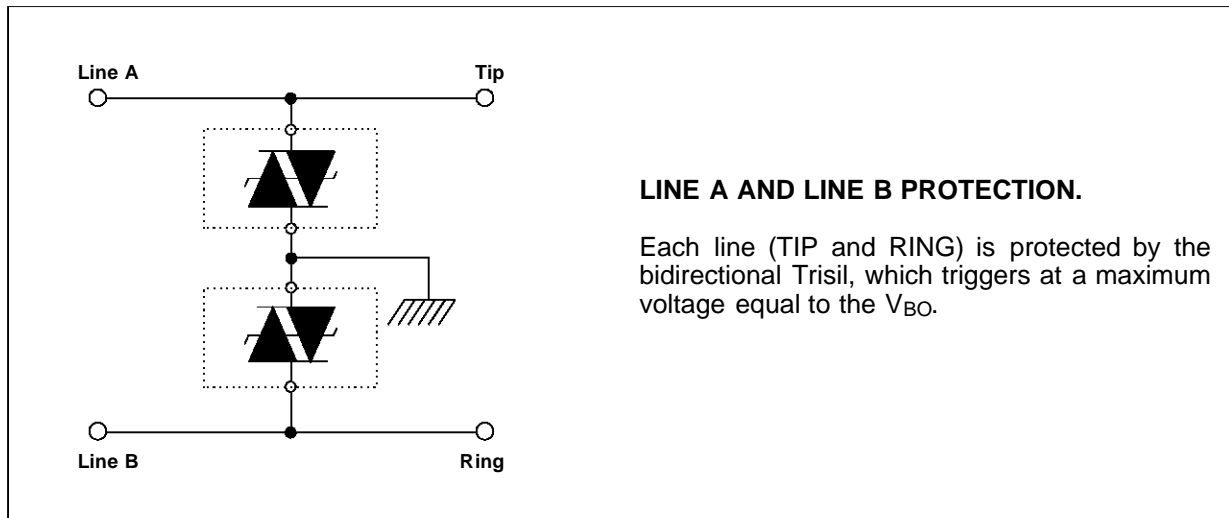


APPLICATION CIRCUIT

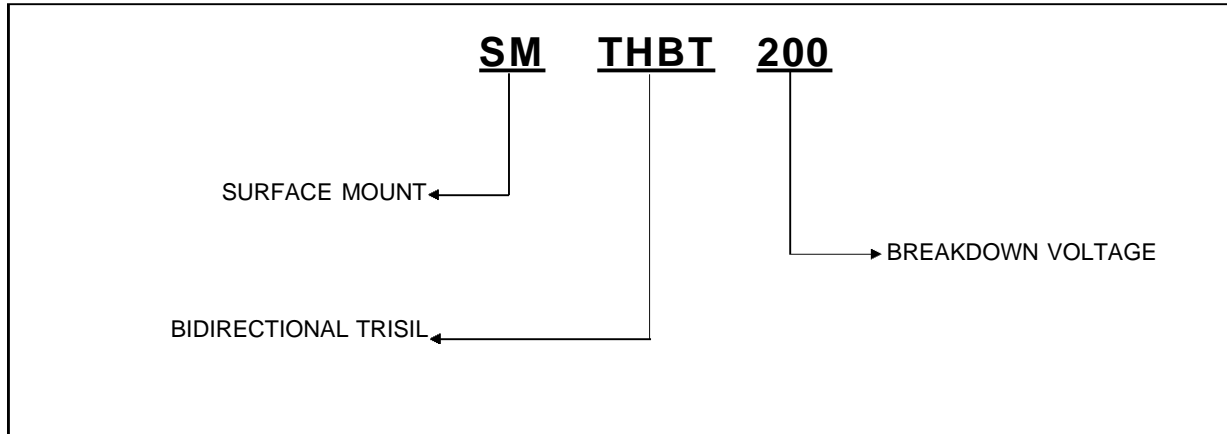
Typical line card protection concept.



FUNCTIONAL DESCRIPTION



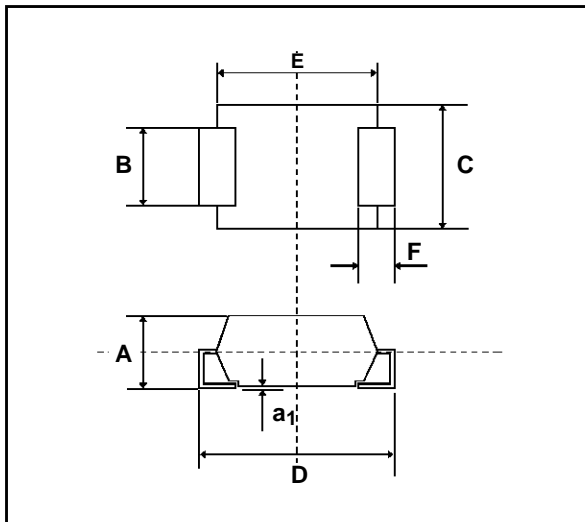
ORDER CODE



MARKING = Logo, WO4

PACKAGE MECHANICAL DATA .

SOD 15 Plastic.



Ref	Millimeters		Inches	
	min	max	min	max
A	2.5	3.1	0.098	0.122
a <sub>1</sub>	-	0.2	-	0.008
B	2.9	3.1	0.114	0.122
C	4.8	5.2	0.190	0.200
D	7.6	8.0	0.300	0.315
E	6.3	6.6	0.248	0.259
F	1.3	1.7	0.051	0.067

Packaging : Standard packaging is in film.

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