

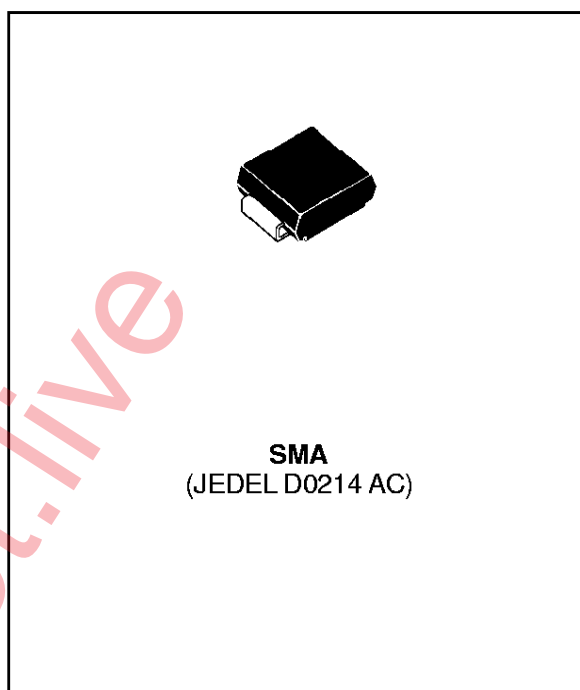
**FEATURES**

- PEAK PULSE POWER : 400 W (10/1000µs)
- STAND OFF VOLTAGE RANGE :  
From 5V to 188V.
- UNI AND BIDIRECTIONAL TYPES
- LOW CLAMPING FACTOR
- FAST RESPONSE TIME
- JEDEC REGISTERED PACKAGE OUTLINE

**DESCRIPTION**

The SMAJ series are TRANSIL™ diodes designed specifically for protecting sensitive equipment against transient overvoltages. The SMA package allows save spacing on high density printed circuit boards.

Transil diodes provide high overvoltage protection by clamping action. Their instantaneous response to transient overvoltages makes them particularly suited to protect voltage sensitive devices such as MOS Technology and low voltage supplied IC's.



**ABSOLUTE MAXIMUM RATINGS** (T<sub>amb</sub> = 25°C)

Symbol	Parameter		Value	Unit
P <sub>p</sub>	Peak pulse power dissipation (see note 1)	T <sub>j</sub> initial = T <sub>amb</sub>	400	W
P	Power dissipation on infinite heatsink	T <sub>amb</sub> = 50°C	3.3	W
I <sub>FSM</sub>	Non repetitive surge peak forward current for unidirectional types	t <sub>p</sub> = 10ms T <sub>j</sub> initial = T <sub>amb</sub>	40	A
T <sub>stg</sub> T <sub>j</sub>	Storage temperature range Maximum junction temperature		- 65 to + 175 150	°C °C
T <sub>L</sub>	Maximum lead temperature for soldering during 10 s.		260	°C

**Note 1 :** For a surge greater than the maximum values, the diode will fail in short-circuit.

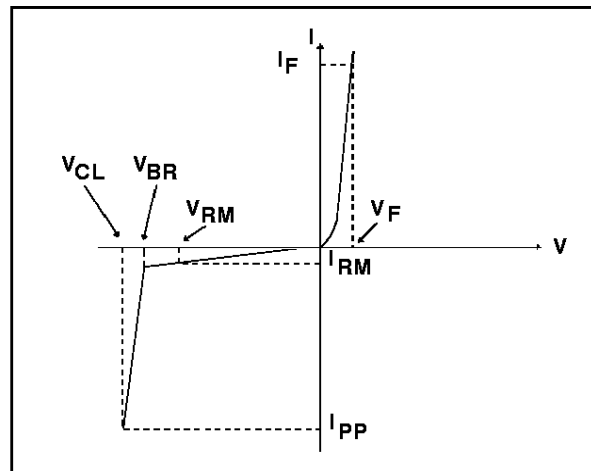
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
R <sub>th (j-l)</sub>	Junction to leads	30	°C/W
R <sub>th (j-a)</sub>	Junction to ambient on printed circuit. On recommended pad layout	120	°C/W

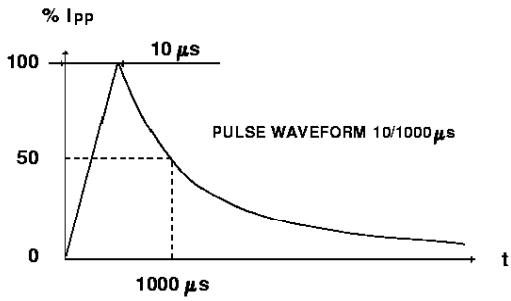
# SMAJxxxA-TR, CA-TR

## ELECTRICAL CHARACTERISTICS (T<sub>amb</sub> = 25°C)

Symbol	Parameter
V <sub>RM</sub>	Stand-off voltage
V <sub>BR</sub>	Breakdown voltage
V <sub>CL</sub>	Clamping voltage
I <sub>RM</sub>	Leakage current @ V <sub>RM</sub>
I <sub>PP</sub>	Peak pulse current
α <sub>T</sub>	Voltage temperature coefficient
V <sub>F</sub>	Forward voltage drop



Types				I <sub>RM</sub> @ V <sub>RM</sub>		V <sub>BR</sub> @ I <sub>R</sub>		V <sub>CL</sub> @ I <sub>PP</sub>		V <sub>CL</sub> @ I <sub>PP</sub>		α <sub>T</sub>	C	
Unidirectional		Mark.	Bidirectional	Mark.	max	min	max	max	max	max	max	max	typ	
					μA	V	V	A	V	A	V	A	10 <sup>-4</sup> /°C	note4
							note2	10/1000μs	8/20μs					
SMAJ5.0A-TR	AE	SMAJ5.0CA-TR	AA	800	5.0	6.4	10	9.2	43.5	13.4	174	5.7	3500	
SMAJ6.0A-TR	DUB	SMAJ6.0CA-TR	DBB	800	6.0	6.7	10	10.3	38.8	13.7	170	5.9	3300	
SMAJ6.5A-TR	DUC	SMAJ6.5CA-TR	DBC	500	6.5	7.2	10	11.2	35.7	14.5	160	6.1	3100	
SMAJ8.5A-TR	DUH	SMAJ8.5CA-TR	DBH	10	8.5	9.44	1	14.4	27.7	18.6	124	7.3	2000	
SMAJ10A-TR	AX	SMAJ10CA-TR	AC	5	10	11.1	1	17	23.5	21.7	106	7.8	1550	
SMAJ12A-TR	DUK	SMAJ12CA-TR	DBK	5	12	13.3	1	19.9	20.1	25.3	91	8.3	1325	
SMAJ13A-TR	BG	SMAJ13CA-TR	BH	1	13	14.4	1	21.5	18.6	27.2	85	8.4	1200	
SMAJ15A-TR	BM	SMAJ15CA-TR	AJ	1	15	16.7	1	24.4	16.4	32.5	71	8.8	975	
SMAJ18A-TR	DUQ	SMAJ18CA-TR	DBQ	1	18	20	1	29.2	13.7	39.3	59	9.2	800	
SMAJ20A-TR	DUR	SMAJ20CA-TR	DBR	1	20	22.2	1	32.4	12.3	42.8	54	9.4	725	
SMAJ22A-TR	DUS	SMAJ22CA-TR	DBS	1	22	24.4	1	35.5	11.2	48.3	48	9.6	625	
SMAJ24A-TR	DUT	SMAJ24CA-TR	DBT	1	24	26.7	1	38.9	10.3	50	46	9.6	600	
SMAJ26A-TR	DUU	SMAJ26CA-TR	DBU	1	26	28.9	1	42.1	9.5	53.5	43	9.7	575	
SMAJ28A-TR	CG	SMAJ28CA-TR	CH	1	28	31.1	1	45.4	8.8	59	39	9.8	510	
SMAJ30A-TR	CK	SMAJ30CA-TR	CL	1	30	33.3	1	48.4	8.3	64.3	36	9.9	480	
SMAJ33A-TR	CM	SMAJ33CA-TR	CN	1	33	36.7	1	53.3	7.5	69.7	33	10.0	450	
SMAJ40A-TR	DUZ	SMAJ40CA-TR	DBZ	1	40	44.4	1	64.5	6.2	84	27	10.1	370	
SMAJ48A-TR	CX	SMAJ48CA-TR	CY	1	48	53.3	1	77.4	5.2	100	23	10.3	320	
SMAJ58A-TR	EUF	SMAJ58CA-TR	EBF	1	58	64.4	1	93.6	4.3	121	19	10.4	270	
SMAJ70A-TR	EUI	SMAJ70CA-TR	EBI	1	70	77.8	1	113	3.5	146	16	10.5	230	
SMAJ85A-TR	EUL	SMAJ85CA-TR	EBL	1	85	94.4	1	137	2.9	178	13	10.6	200	
SMAJ100A-TR	EUN	SMAJ100CA-TR	EBN	1	100	111	1	162	2.5	212	11	10.7	170	
SMAJ130A-TR	EUQ	SMAJ130CA-TR	EBQ	1	130	144	1	209	1.9	265	9	10.8	145	
SMAJ154A-TR	EUT	SMAJ154CA-TR	EBT	1	154	171	1	246	1.6	317	7	10.8	125	
SMAJ170A-TR	SR	SMAJ170CA-TR	SS	1	170	189	1	275	1.4	353	6.5	10.8	120	
SMAJ188A-TR	EUV	SMAJ188CA-TR	EBV	1	188	209	1	328	1.4	388	6	10.8	110	

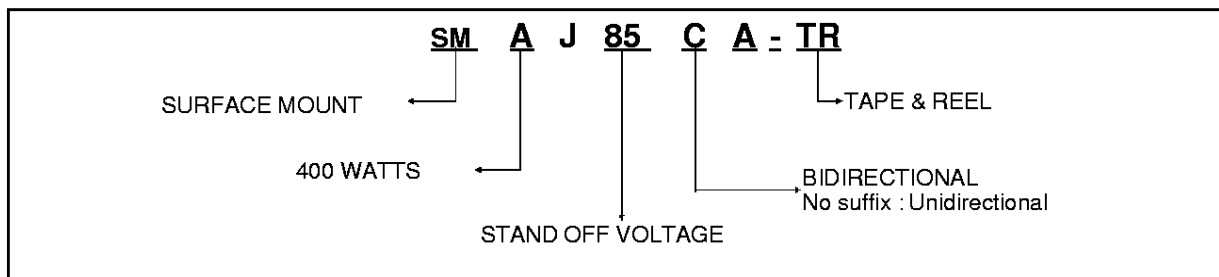


**Note 2 :** Pulse test :  $t_p < 50$  ms.

**Note 3 :**  $\Delta V_{BR} = \alpha T * (T_{amb} - 25) * V_{BR}(25^{\circ}C)$ .

**Note 4 :**  $V_R = 0$  V,  $F = 1$  MHz. For bidirectional types, capacitance value is divided by 2.

**ORDER CODE**

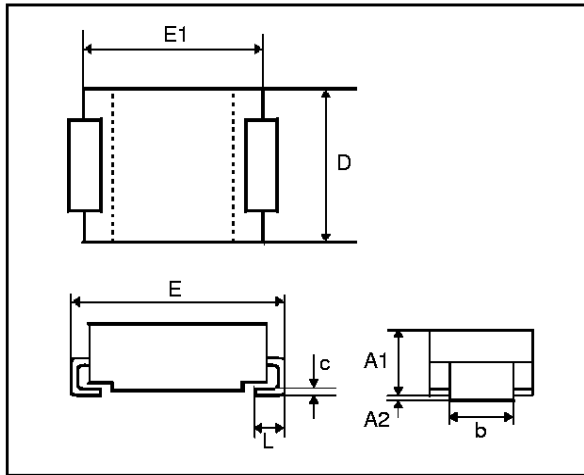


## SMAJxxxA-TR, CA-TR

**MARKING** : Logo, Date Code, Type Code, Cathode Band (for unidirectional types only).

### PACKAGE MECHANICAL DATA

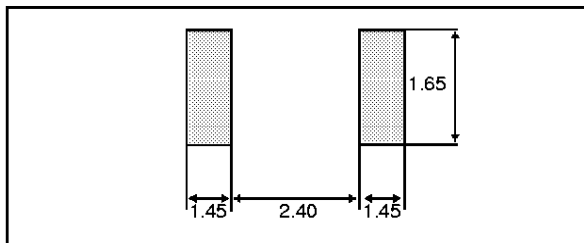
SMA (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A1	1.90	2.30	2.70	0.075	0.091	0.106
A2	0.05	0.15	0.20	0.002	0.006	0.008
b	1.25		1.65	0.049		0.065
c	0.15		0.41	0.006		0.016
E	4.80	5.20	5.60	0.189	0.205	0.220
E1	3.95	4.30	4.60	0.156	0.169	0.181
D	2.25	2.60	2.95	0.089	0.102	0.116
L	0.75	1.15	1.60	0.030	0.045	0.063

### FOOTPRINT DIMENSIONS (Millimeter)

SMA Plastic.



**Weight** = 0.06 g

**Packaging** : standard packaging is in tape and reel.

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