

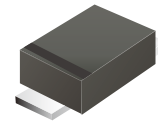
CTVTS04xxx(U)-HF Series

Working Peak Reverse Voltage: 5 to 60 V

Peak Pulse Power: 400 W

RoHS Device

Halogen Free

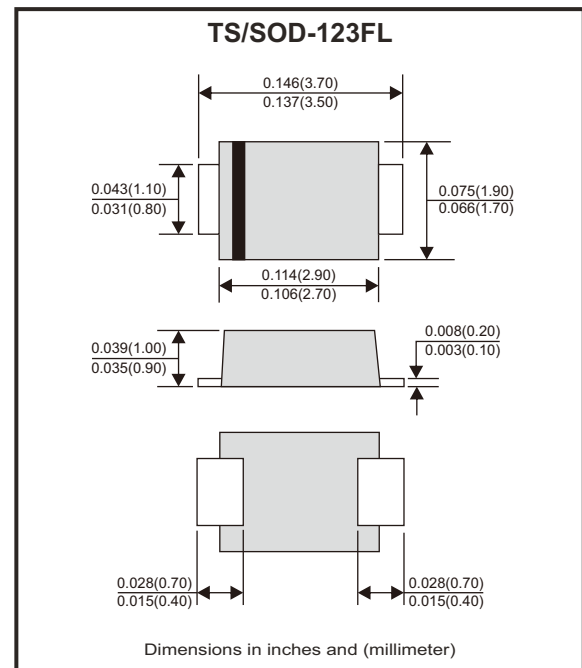


Features

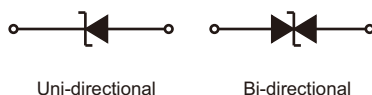
- Glass passivated chip.
- 400W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycles): 0.01%.
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- IEC 61000-4-2 (ESD) $\pm$ 30kV (air/contact)
- High temperature soldering:
260°C/40 seconds at terminals.

Mechanical data

- Case: TS/SOD-123FL, molded plastic.
- Terminal: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end except bipolar.
- Mounting position: Any.



Circuit Diagram



Maximum Ratings (Ta=25°C unless otherwise noted)

Characteristics	Symbol	Value	Units
Peak power dissipation with a 10/1000 μ s waveform (Note 1)	P _{PP}	400	W
Peak pulse current with a 10/1000 μ s waveform (Note 1)	I _{PP}	See next table	A
Power dissipation on infinite heatsink at T _L = 50°C	P _D	1.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only (Note 2)	I _{FSM}	30	A
Max. instantaneous forward voltage at 25A for unidirectional only	V _F	3.5	V
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C

Notes: 1. Non-repetitive current pulse, per Fig.5 and derated above Ta=25°C per Fig.1 .

2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

Electrical Characteristics (TA=25°C unless otherwise noted)

Part No	Breakdown voltage V _{BR} @ I _T			Maximum reverse leakage @V _{RWM} I _R (μA)	Working peak reverse voltage V _{RWM} (V)	Maximum reverse surge current I _{PP} (A)	Maximum clamping voltage @I _{PP} V _C (V)	Marking code	
	Min(V)	Max(V)	I _T (mA)					Uni	Bi
CTVTS045V0(U)-HF	6.40	7.00	10	800	5.0	43.5	9.2	KE	AE
CTVTS046V0(U)-HF	6.67	7.37	10	800	6.0	38.8	10.3	KG	AG
CTVTS046V5(U)-HF	7.22	7.98	10	500	6.5	35.7	11.2	KK	AK
CTVTS047V0(U)-HF	7.78	8.60	10	200	7.0	33.3	12.0	KM	AM
CTVTS047V5(U)-HF	8.33	9.21	1	100	7.5	31.0	12.9	KP	AP
CTVTS048V0(U)-HF	8.89	9.83	1	50	8.0	29.4	13.6	KR	AR
CTVTS048V5(U)-HF	9.44	10.4	1	20	8.5	27.8	14.4	KT	AT
CTVTS049V0(U)-HF	10.0	11.1	1	10	9.0	26.0	15.4	KV	AV
CTVTS0410V(U)-HF	11.1	12.3	1	5	10	23.5	17.0	KX	AX
CTVTS0411V(U)-HF	12.2	13.5	1	1	11	22.0	18.2	KZ	AZ
CTVTS0412V(U)-HF	13.3	14.7	1	1	12	20.1	19.9	LE	BE
CTVTS0413V(U)-HF	14.4	15.9	1	1	13	18.6	21.5	LG	BG
CTVTS0414V(U)-HF	15.6	17.2	1	1	14	17.2	23.2	LK	BK
CTVTS0415V(U)-HF	16.7	18.5	1	1	15	16.4	24.4	LM	BM
CTVTS0416V(U)-HF	17.8	19.7	1	1	16	15.4	26.0	LP	BP
CTVTS0417V(U)-HF	18.9	20.9	1	1	17	14.5	27.6	LR	BR
CTVTS0418V(U)-HF	20.0	22.1	1	1	18	13.7	29.2	LT	BT
CTVTS0420V(U)-HF	22.2	24.5	1	1	20	12.3	32.4	LV	BV
CTVTS0422V(U)-HF	24.4	26.9	1	1	22	11.3	35.5	LX	BX
CTVTS0424V(U)-HF	26.7	29.5	1	1	24	10.3	38.9	LZ	BZ
CTVTS0426V(U)-HF	28.9	31.9	1	1	26	9.5	42.1	ME	CE
CTVTS0428V(U)-HF	31.1	34.4	1	1	28	8.8	45.4	MG	CG
CTVTS0430V(U)-HF	33.3	36.8	1	1	30	8.3	48.4	MK	CK
CTVTS0433V(U)-HF	36.7	40.6	1	1	33	7.5	53.3	MM	CM
CTVTS0436V(U)-HF	40.0	44.2	1	1	36	6.9	58.1	MP	CP
CTVTS0440V(U)-HF	44.4	49.1	1	1	40	6.2	64.5	MR	CR
CTVTS0443V(U)-HF	47.8	52.8	1	1	43	5.8	69.4	MT	CT
CTVTS0445V(U)-HF	50.0	55.3	1	1	45	5.5	72.7	MV	CV
CTVTS0448V(U)-HF	53.3	58.9	1	1	48	5.2	77.4	MX	CX
CTVTS0451V(U)-HF	56.7	62.7	1	1	51	4.9	82.4	MZ	CZ
CTVTS0454VU-HF	60.0	66.3	1	1	54	4.6	87.1	NE	
CTVTS0458VU-HF	64.4	71.2	1	1	58	4.3	93.6	NG	
CTVTS0460VU-HF	66.7	73.7	1	1	60	4.1	96.8	NK	

Notes: 1. For Bi-directional devices having V_R of 10 volts and under, the I_R limit is double.

2. For Uni-directional devices, use suffix U.

Typical Rating and Characteristic Curves (CTVTS04xxx(U)-HF Series)

Fig.1 - Pulse Derating Curve

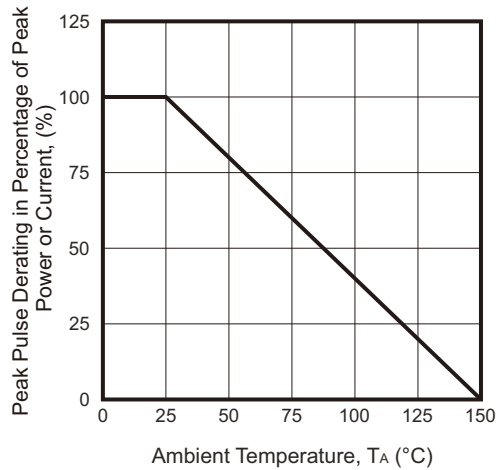


Fig.2 - Max. Non-repetitive Surge Current

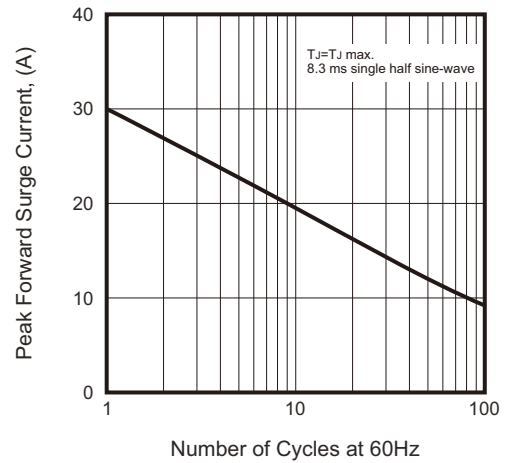


Fig.3 - Typical Junction Capacitance

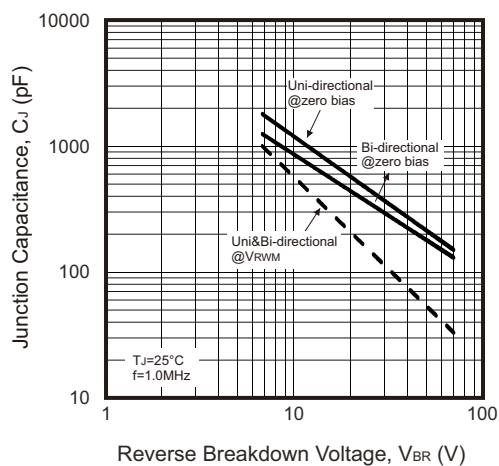


Fig.4 - Peak Pulse Power Rating Curve

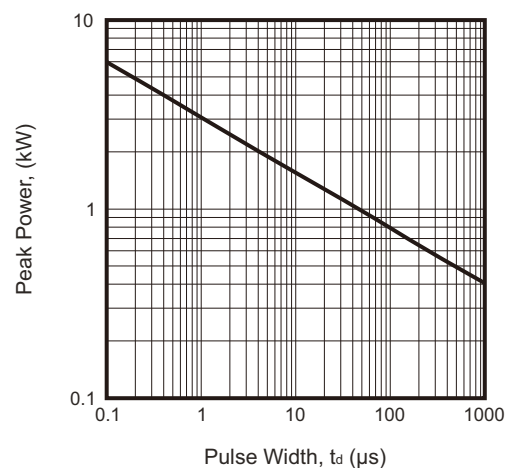
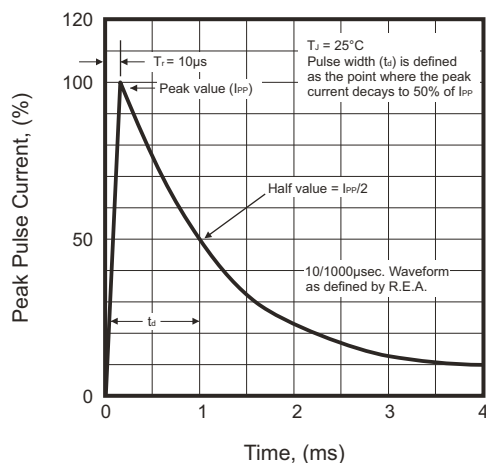
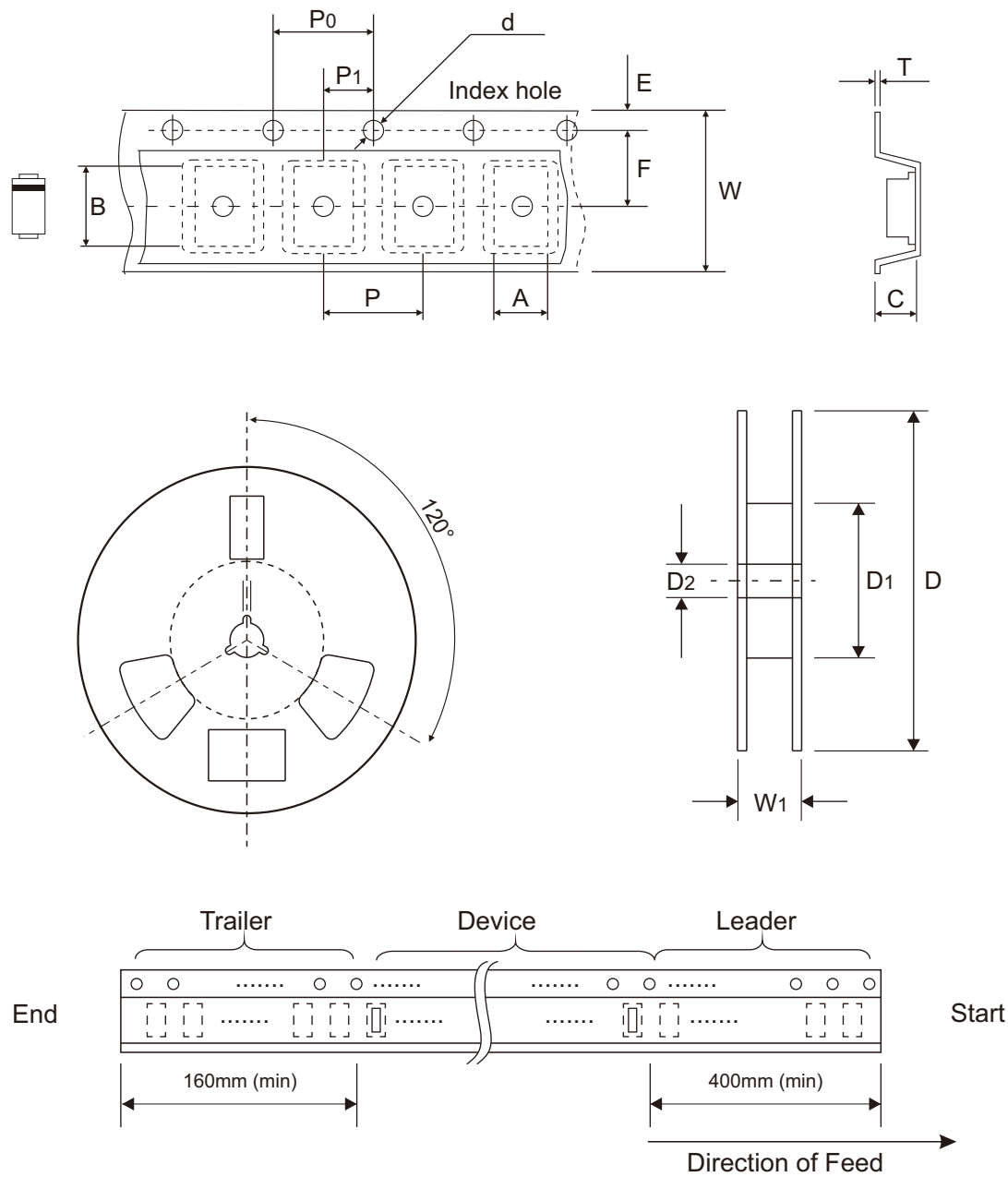


Fig.5 - Pulse Waveform



Reel Taping Specification



TS/ SOD-123FL	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	2.05 ± 0.10	3.85 ± 0.10	1.25 ± 0.10	1.55 ± 0.05	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.50
	(inch)	0.081 ± 0.004	0.152 ± 0.004	0.049 ± 0.004	0.061 ± 0.002	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.020

TS/ SOD-123FL	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.05	8.00 ± 0.30	12.00 ± 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.002	0.315 ± 0.012	0.472 ± 0.020

Marking Code

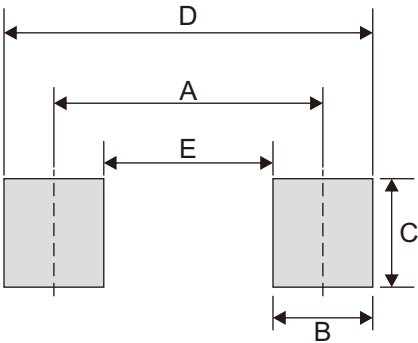
Part Number	Marking Code
CTVTS04xxx(U)-HF	See Page 2



xx = Product type marking code (See Page 2)
| = Cathode band

Suggested P.C.B. PAD Layout

SIZE	TS/SOD-123FL	
	(mm)	(inch)
A	3.10	0.122
B	1.15	0.045
C	1.25	0.048
D	4.25	0.167
E	1.95	0.077



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
TS/SOD-123FL	3,000	7