

Description

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

Features

- For surface mounted applications
- Excellent clamping capability
- 4500 W peak pulse power capability with a 8/20 μ s Waveform.
- V_{RWM} 5.0-28V
- Low profile package and low inductance
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps from 0V to V_{BR} min.

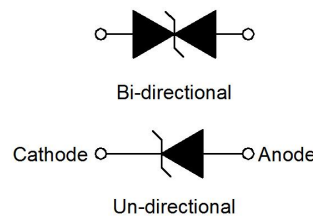
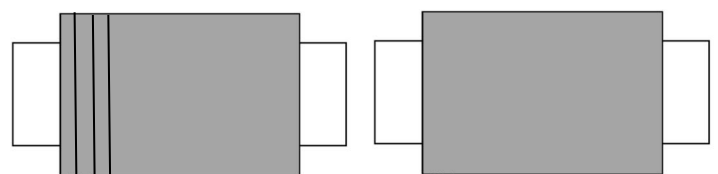
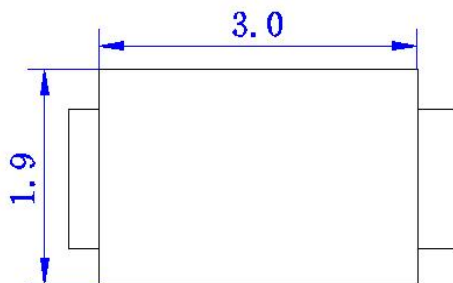
Applications

- computer system
- domestic appliance
- video input

Mechanical Characteristics

- Package: SOD123FL
 - Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
 - Moisture Sensitivity: Meet MSL 1
 - Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
 - Polarity: Color band denotes cathode except bi-directional models
- Weight: 0.07g(Approximate)

Dimensions & Symbol (Unit: mm Max)



Electrical Characteristics (T=25°C)

Part Number	V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ^①	Co ^②
	V	μA	min(V)	max(V)	mA	max(V)	A	Max(pF)
KTM4105-12F	5	300	6.4	7.0	10	15	220	1400
KTM4205-12F	5	300	6.4	7.0	10	15	220	1000
KTM4106-12F	6	100	6.7	7.4	10	16	220	1400
KTM4206-12F	6	100	6.7	7.4	10	16	220	1000
KTM41065-12F	6.5	50	7.2	8.0	10	16	200	1400
KTM42065-12F	6.5	50	7.2	8.0	10	16	200	1000
KTM4107-12F	7	50	7.7	8.6	10	17	220	1400
KTM4207-12F	7	50	7.7	8.6	10	17	220	1000
KTM4109-12F	9	2	10	11.1	1	20	200	1400
KTM4209-12F	9	2	10	11.1	1	20	200	1000
KTM4112-12F	12	1	13.3	14.7	1	24	200	1200
KTM4212-12F	12	1	13.3	14.7	1	24	190	600
KTM4115-12F	15	1	16.7	18.5	1	26	220	1000
KTM4215-12F	15	1	16.7	18.5	1	26	180	500
KTM4118-12F	18	1	20	22.1	1	30	160	700
KTM4218-12F	18	1	20	22.1	1	30	160	500
KTM4120-12F	20	1	22.2	24.5	1	35	160	700
KTM4220-12F	20	1	22.2	24.5	1	35	160	500
KTM4124-12F	24	1	26.7	29.5	1	40	200	700
KTM4224-12F	24	1	26.7	29.5	1	40	200	500
KTM4126-12F	26	1	28.9	31.9	1	44	80	1000
KTM4226-12F	26	1	28.9	31.9	1	44	80	1000
KTM4128-12F	28	1	31.1	34.4	1	48	80	960
KTM4228-12F	28	1	31.1	34.4	1	48	80	960

Notes:

① Surge waveform: 8/20μs

② Off-state capacitance (Co) is measured at 1 MHz with a 0 V bias and is typical value

V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown Voltage

V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

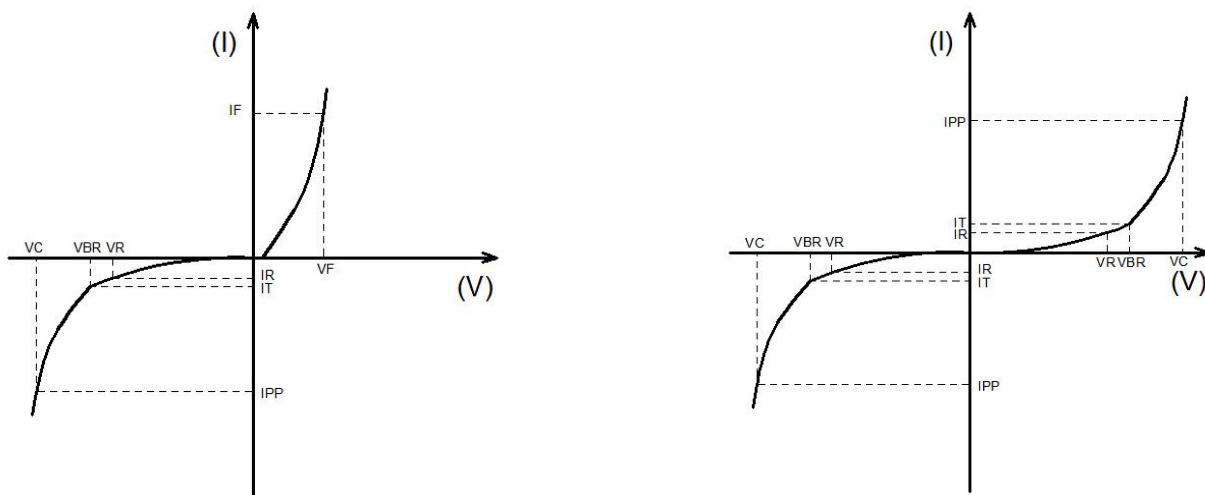
I_R: Reverse Leakage Current

Absolute Maximum Ratings($T=25^{\circ}\text{C}$, $\text{RH}=45\%-75\%$, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 μs waveform	P_{PP}	4500	W
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	$P_{M(AV)}$	1.0	W
Operating junction temperature range	T_j	-55 to +125	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-55 to +150	$^{\circ}\text{C}$

Ratings And V-I Characteristics Curves ($T=25^{\circ}\text{C}$, unless otherwise noted)

FIG1: V-I cure characteristics



Symbol	Parameter
I_F	Mean Forward Current
V_F	Maximum Forward Voltage @ I_F
V_R	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_R
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}

Typical Characteristics

FIG2: Pulse Derating Curve

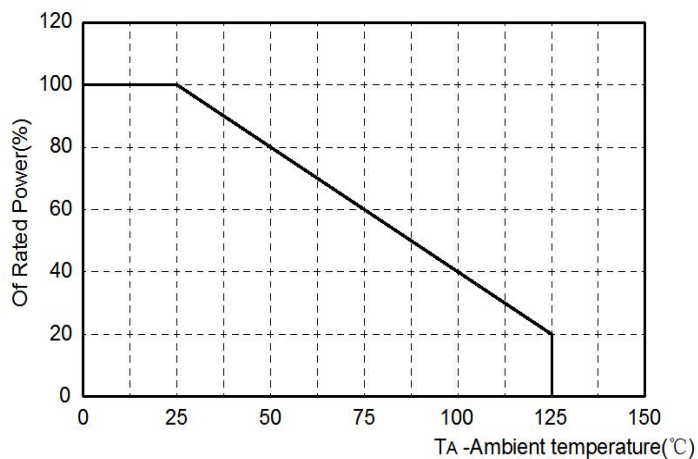


FIG3: Pulse Waveform

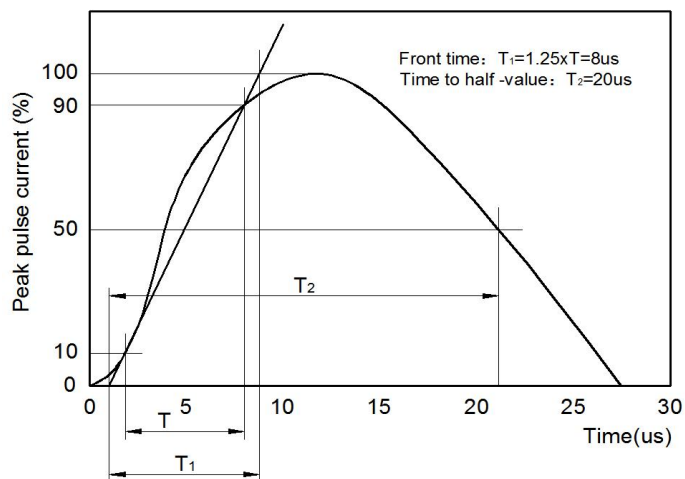


FIG4: Peak Pulse Power Rating Curve

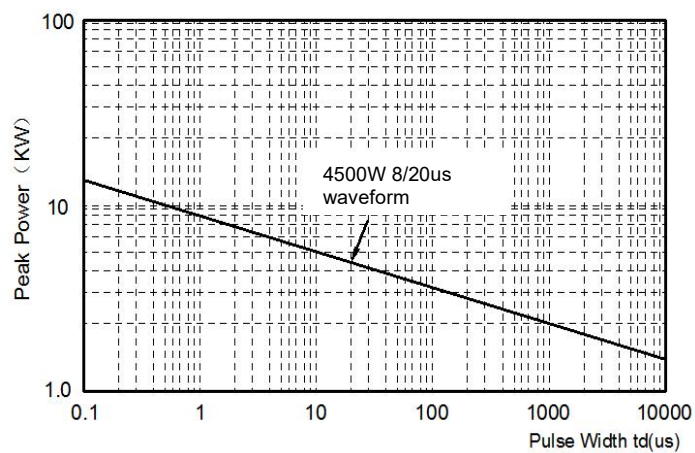
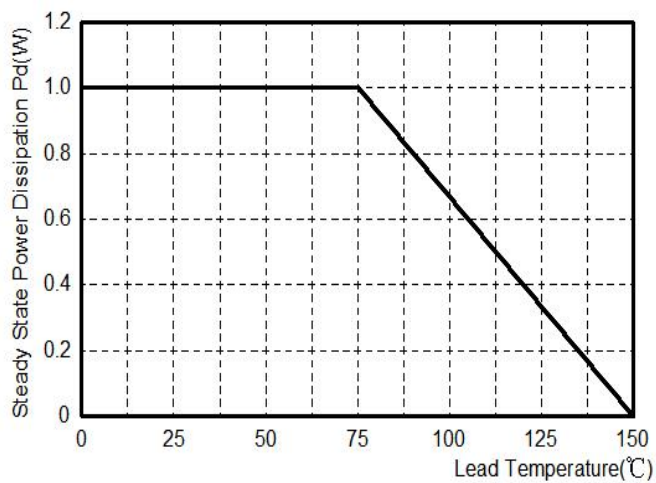
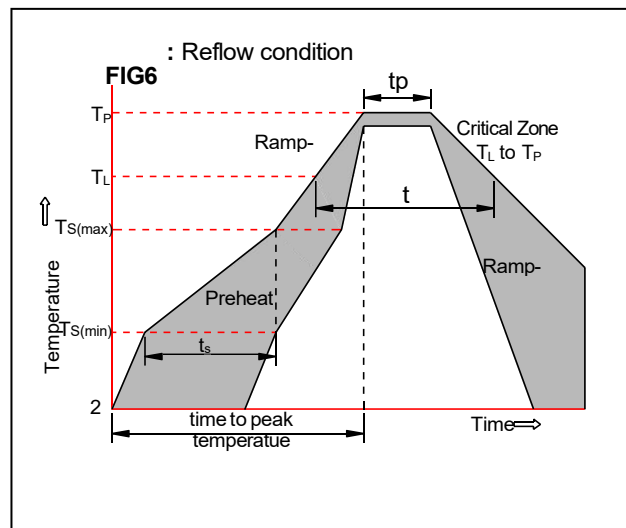


FIG5: Steady State Power Dissipation

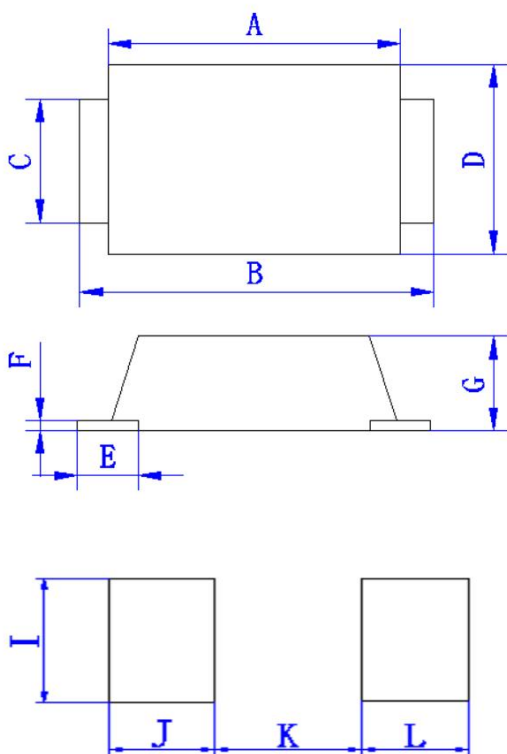


Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package mechanical data & Suggested Land Pattern



Ref.(mm)	Millimeters	
	Min.	Max.
A	2.5	3.0
B	3.4	4.0
C	0.7	1.1
D	1.5	1.9
E	0.45	0.95
F	0.05	0.26
G	0.9	1.1
I	1.2	
J	0.85	
K		2.3
L	0.85	