Surge & ESD Protection Device
SPE06S Series

Features

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit
- Fails short circuit when surged in excess of ratings
- Bi-directional protection device
- RoHS compliance



IEC Compatibility

- IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC 61000-4-5 (SURGE) 10/700μs ± 4KV(SPE06SB,SPE06SBL)
- IEC 61000-4-5(SURGE) 10/700μs ± 6KV(SPE06SC,SPE06SCL)

Applications

- Audio/Video line
- Network and telecom
- Data lines and security systems
- Serial ports

Applicable Global Standards

- TIA-968-A
- TIA-968-B
- ITU K.20/21 Enhanced Level*
- GR 1089 Intra-building
- YD/T 1082
- YD/T 993
- YD/T 950
- ITU K.20/21 Basic Level
- GR 1089 Inter-building*

* A/B-rated parts require series resistance

Product Name

SPE 06 S A L

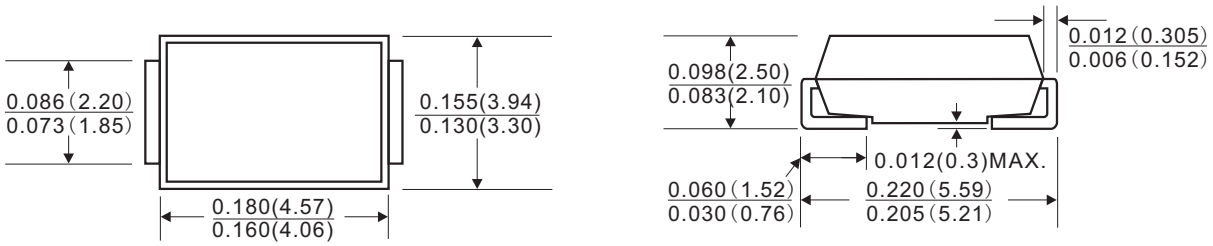
- L: Default / L: Low capacitance
- A: Surge Ratings: A: IEC6100-4-5(SURGE) 10/700us ± 2KV; B: IEC6100-4-5(SURGE) 10/700us ± 4KV; C: IEC6100-4-5(SURGE) 10/700us ± 6KV
- S: Packge type: R:DO-214AC; S:DO-214AA; T:SOD-123
- 06: V_{RWM}
- SPE: Type Designation

Maximum Ratings(T_A=25℃ unless otherwise specified)

Rating	Symbol	Value	Units
Termal Resistance:Junction to Ambient	$R_{\theta JA}$	90	℃/W
Operating junction	T_J	−40 to +150	℃
Storage Temperature Range	T_S	−65 to +150	℃

Dimensions (DO-214AA)

DO-214AA(SMB J-Bend)

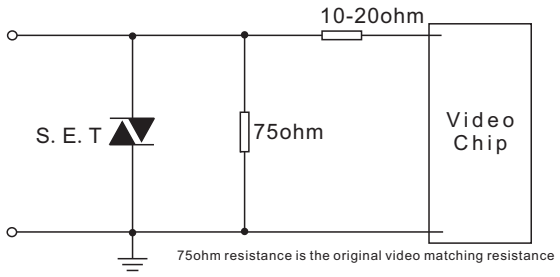


Dimensions in inches and(millimeters)

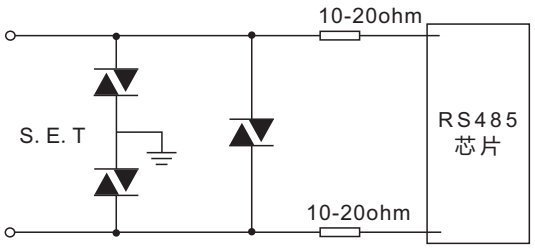
Electrical Characteristics(T_A=25℃ unless otherwise specified)

SPE06S Part Number	Device Marking Code	V_{RWM}	V_S @100V/μs	V_{BR}		V_T @I_T	I_R @V_{RWM}	I_H	Capacitance @1MHz,2V bias
		V(typ.)	V(max.)	V(min.)	V(max.)	V(max.)	μA(max.)	mA(min.)	pF(max.)
SPE06SB	E06SB	6.5	25	8.0	15.0	4	3	20	60
SPE06SC	E06C	6.5	25	8.0	15.0	4	3	20	100
SPE06SBL	EDA	6.5	25	8.0	15.0	4	2	20	40
SPE06SCL	EFA	6.5	25	8.0	15.0	4	2	20	50

Typical Application Circuit



BNC视频方案



RS485方案

Typical Characteristics Curves

Fig.1 tr×td Pulse Wave-form

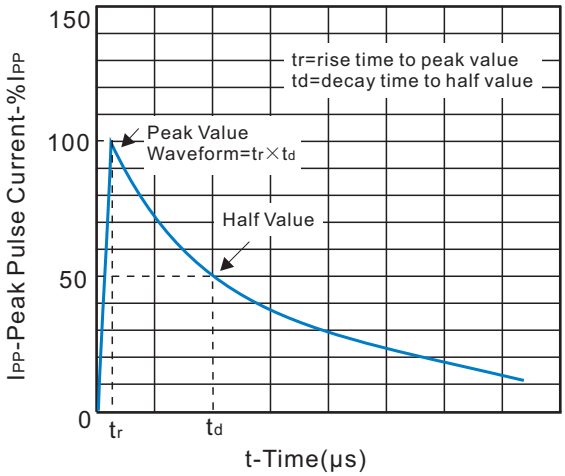


Fig.2 ESD Discharge IEC61000-4-2 Current Waveform

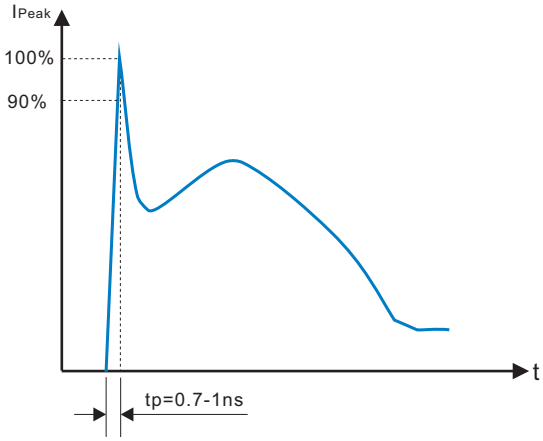


Fig.3 Power Derating Curve

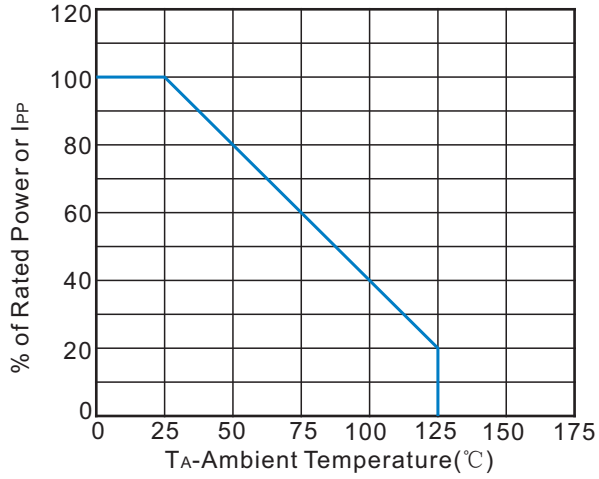


Fig.4 Junction Capacitance vs. Reverse Voltage

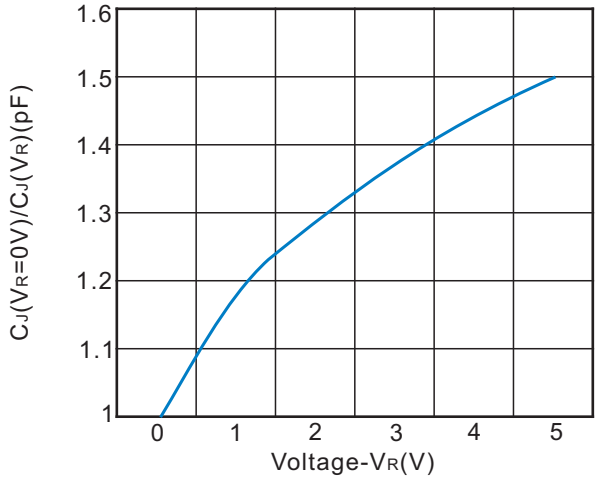


Fig.5 Normalized vs Change Versus Junction Temperature

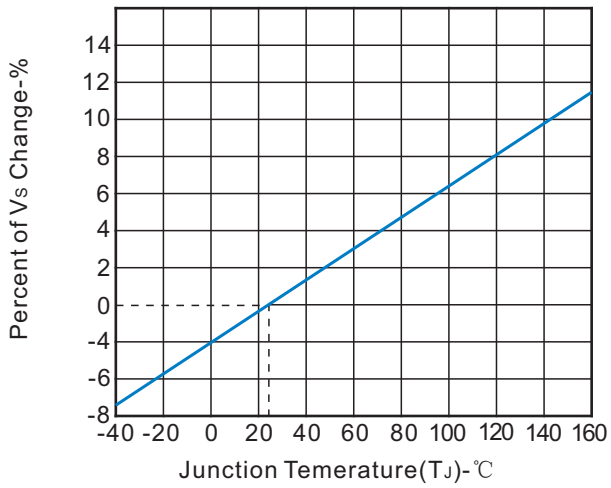
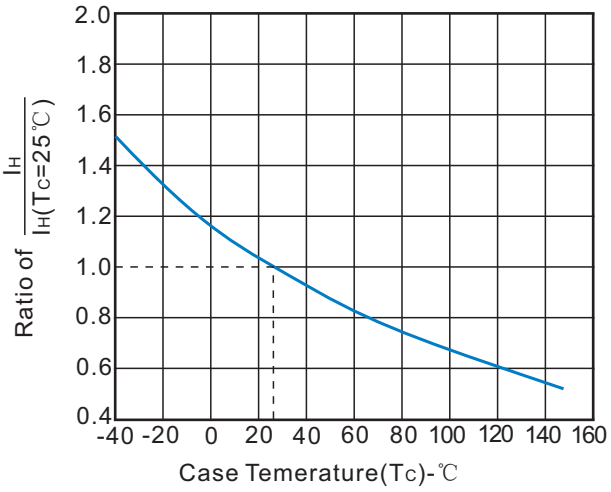
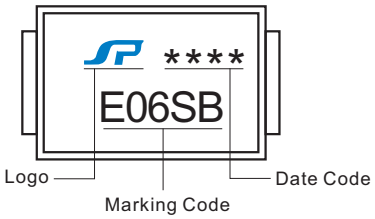


Fig.6 Normalized DC Holding Current



Marking Code

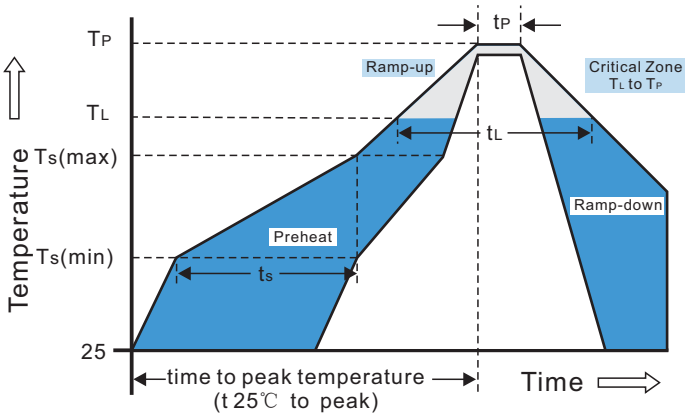


Recommended Soldering Conditions

Recommended Conditions

Re"ow Condition		Pb-Free assembly
Pre Heat	-Temperature Min($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time(Min to Max)(t_s)	60-180secs
Average ramp up rate (Liquidus Temp(T_L) to peak)		3℃/sec.Max.
$T_{s(max)}$ to T_L -Ramp-up Rate		3℃/sec.Max.
Re"ow	-Temperature(T_L)(Liquidus)	+217℃
	-Temperature(t_L)	60-150secs
Peak Temp(T_P)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp(t_P)		30 secs.Max.
Ramp-down Rate		6℃/sec.Max.
Time 25℃ to Peak Temp(T_P)		8 min.Max.
Do not exceed		+260℃

Reflow Soldering



Tape And Reel Specification

Symbol	Ea Per Reel	Reel Dia(mm)	Industry Standard
SPE06S**	2500	330	EIA RS-481

