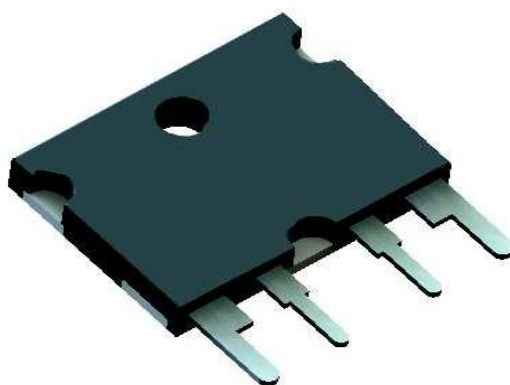


Metal Type Current Sensing Resistor with Molding

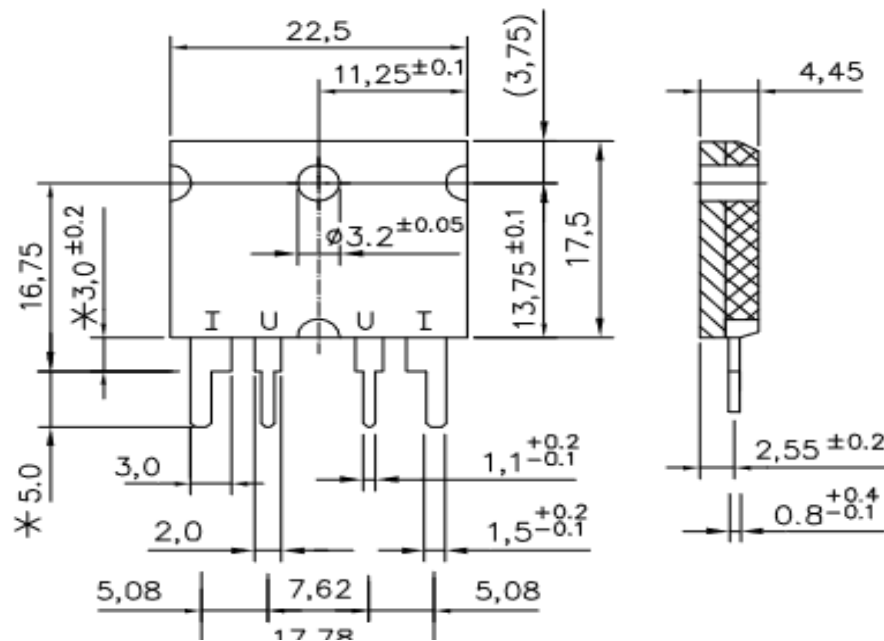
SRM4T2321



Scope

This specification of high power molding type current sensing resistor rectangular type.

Dimensions



Features

- ◆ Chip size 2321
- ◆ Resistance value: 0.5m Ω , 1m Ω , 2m Ω , 5m Ω , 10m Ω
- ◆ Power Rating to 40W with Heat Sink
- ◆ Package Style 2321 4 Terminals
- ◆ Excellent Long Term Stability
- ◆ Resistance Tolerance : \pm 1%, \pm 0.5%
- ◆ Lead free, RoHs compliant for global applications and halogen free

Application

- ◆ Power Module
- ◆ Frequency Converters
- ◆ Switch Mode Power Supplies

Specification

TYPE		SMR4T2321
Resistance Range		0.0005, 0.001, 0.002, 0.005, 0.010 Ohms
Power Rating	Free air 70°C	3W
	With heatsink	40W
Tolerances R0005 R001,R002 R005,R010		±1% ±0.5%, ±1% ±0.5%, ±1%
Thermal Resistance		2.0 C/W
Stability (2000h)		0.1% / 0.2% / 0.5% (depends on stress)
Temperature Coefficient Standard Option 1 Option 2 upon request for selected values		±10ppm/K (20 to 60°C) ± 5ppm/K (20 to 60°C) ± 2ppm/K (20 to 60°C)
Voltage Proof		300 VDC
Maximum Current		150 A
Thermal EMF		< 1μV/K
Operating Temperature Range		-40 to 130 °C
Resistor Material		CuNiMn / FeCrAl / NiCrAlSi
Substrate		Aluminum / Anodized aluminum
Housing		Epoxy
Connector Material		Cu / tinned
Terminals		4 (standard contact S)
Max. Torque		0.8 Nm

Part Numbers

SRM 4T 2321 U F H R001

(1) (2) (3) (4)(5)(6)(7)

- (1) SRM: series number
- (2) 4T: contact / 4 terminals
- (3) 2321: dimension
- (4) U: TUBE
- (5) F: ±1% (B:±0.5%)
- (6) H: Power rateing 3W
- (7) R001: resistance value=1mΩ

Performances

Figure 1—TCR (Temperature Coefficient of Resistance)

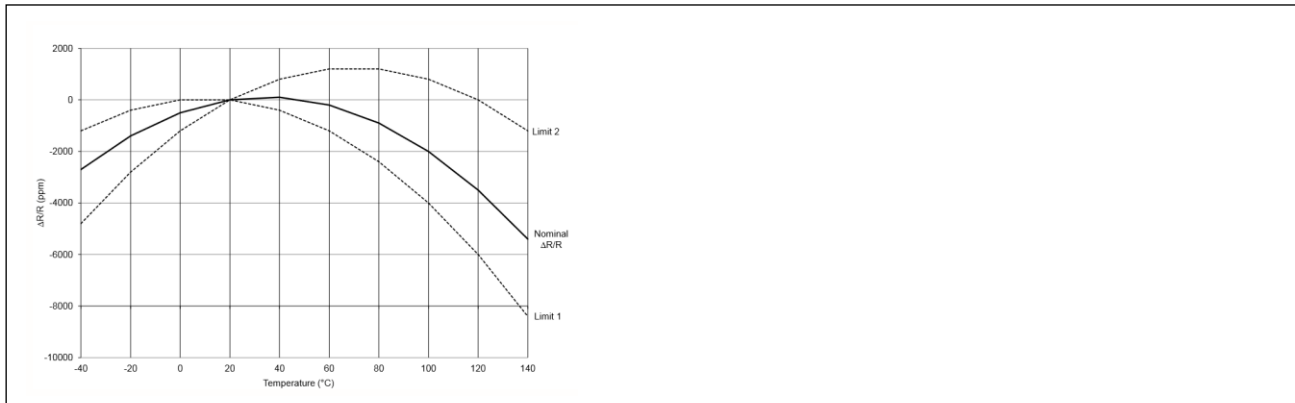
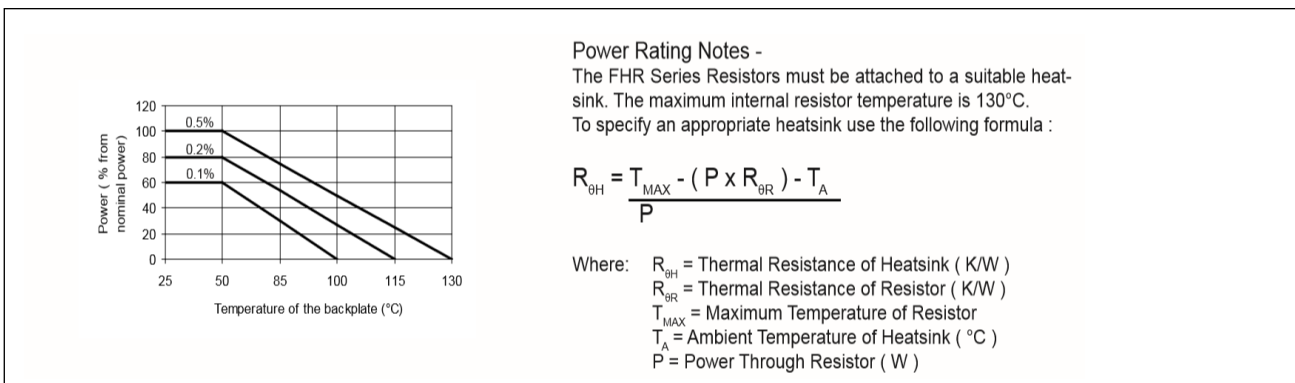
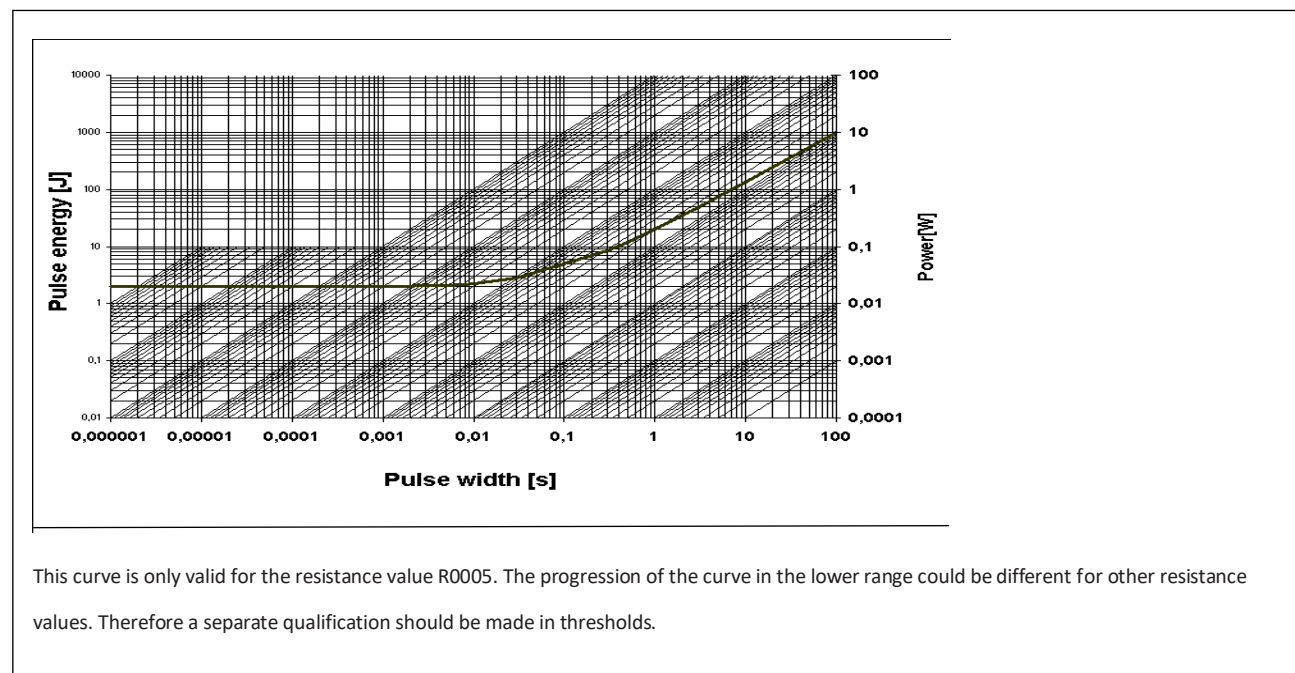


Figure 2—Derating Curve



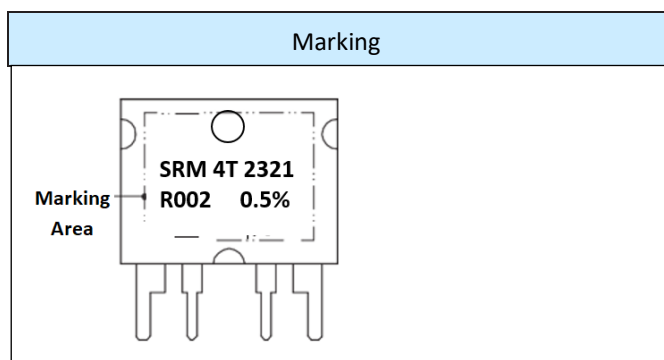
Maximum pulse energy respectively pulse power for continuous operation



Environmental Performance		
Parameters	Test Conditions	Specification
Maximum Temperature for full power operation (R > 2 mOhm)	70/90 °C	65/95 °C
Working Temperature	-55 to 125 °C	-55 to 125 °C
Thermal Shock	MIL-STD-202 method 107-B1	0.1 %
Overload	MIL-R-26E (5 times rated power, 5 sec)	0.2 %
Solderability	MIL-STD-202 method 208	> 95 % coverage
Resistance to Solvents	MIL-STD-202 method 215, 2.1a, 2.1d	no damage
Low Temperature Storage and Operation	MIL-STD-26E	0.1 %
Terminal Strength	MIL-STD-202 method 211	50N, 0.02 %
Resistance to Soldering Heat	MIL-STD-202 method 210	0.1 %
Moisture Resistance	MIL-STD-202 method 106	0.1 %
Shock	MIL-STD-202 method 213-A	0.2 %
Vibration, High Frequency	MIL-STD-202 method 204-B	0.2 %
Life	MIL-STD-26E	0.2 %
Storage Life at Elevated Temperature	MIL-STD-202 method 108-F	0.3 %
High Temperature Exposure	140 °C, 2000 h	0.2 %
Current Noise	MIL-STD-202 method 308	0.01 %
Voltage Coefficient (%/V)	MIL-STD-202 method 309	linearity error less than 120dB
Resistance Temperature Characteristic	MIL-STD-202 method 304 (20-60°C)	< 30 ppm/K
Thermal EMF	0 - 100 °C	2 µV/K max.
Frequency Characteristic	inductivity	< 10 nH

Assembly instruction
Max. allowed torque for screws M3
1 Nm

Recommended solder profile			
Reflow- IR / Reflow- IR-soldering			
Temperature [°C]	260	255	217
Time [s]	Peak	40	90



Packaging Information	
Tube	
Parts per tube	25

Storage Conditions	
Temperature : 5~35°C, Humidity : 40~75%	

ECN

Engineering Change Notice : The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.