

RS PRO Thin Film Current Sensing Chip Resistors



FEATURES

- Thin film process
- High power rating up to 6 Watts in 2512 size
- Tight tolerance down to $\pm 0.1\%$
- Extremely low TCR down to $\pm 50 \text{ PPM}/^\circ\text{C}$ -

Resistance values from 50ohm to 1000ohm

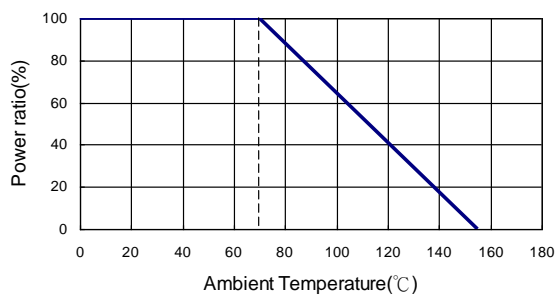
- High purity alumina substrate for high power dissipation

RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Applications

- Power Management Applications
- Switching Power Supply
- Over Current Protection in Audio Applications
- Voltage Regulation Module (VRM)
- DC-DC Converter, Battery Pack, Charger, Adaptor
- Automotive Engine Control
- Disk Driver
- Portable Devices (PDA, Cell Phone)

Derating Curve



Standard Electrical Specifications

Type	Item	Power Rating at 70°C	Operating Temp. Range	Resistance Range (Ω)		TCR (PPM/°C)
				±0.5%	±1%	
	2430448, 2430449, 2430463, 2430464, 2430467, 2430468, 2430443, 2430444, 2430445, 2430446, 2430455, 2430456, 2430423, 2430424, 2430430, 2430432, 2430435, 2430436, 2430452, 2430454, 2430459, 2430460, 2430470, 2430471, 2430700, 2430701, 2430707, 2430708, 2430704, 2430705, 2430421, 2430422, 2430433, 2430434, 2430441, 2430442, 2430709, 2430710, 2430693, 2430694, 2430697, 2430698, 2430416, 2430417, 2430426, 2430427, 2430428, 2430429, 2430439, 2430440, 2430414, 2430415, 2430437, 2430438, 2430450, 2430451, 2430461, 2430462, 2430418, 2430420, 2430457, 2430458, 2430465, 2430466, 2430711, 2430713, 2430714, 2430715, 2430691, 2430692, 2430702, 2430703, 2430695, 2430696, 2430716, 2430717 (0402)	1/16W	-55~+155°C	500 - 1000		±100 ±50

Thin Film Chip Resistors



2430477, 2430478, 2430482, 2430483, 2430474, 2430476, 2430472, 2430473, 2430472, 2430473, 2430479, 2430480, 2430484, 2430485, 2430486, 2430487, 2430620, 2430621, 2430626, 2430628, 2430586, 2430587, 2430596, 2430597, 2430622, 2430623, 2430614, 2430615, 2430631, 2430632, 2430638, 2430639, 2430636, 2430637, 2430592, 2430593, 2430608, 2430609, 2430574, 2430575, 2430577, 2430578, 2430584, 2430585, 2430594, 2430595, 2430616, 2430617, 2430634, 2430635, 2430579, 2430580, 2430581, 2430583, 2430590, 2430591, 2430603, 2430604, 2430618, 2430619, 2430572, 2430573, 2430588, 2430589, 2430599, 2430600, 2430610, 2430611, 2430624, 2430625, 2430601, 2430602, 2430606, 2430607, 2430612, 2430613, 2430629, 2430630, 2430640, 2430641 (0603)	1/10W	-55~+155°C	200 - 300	±100	
			301 - 1000	±50	
2430488, 2430489, 2430496, 2430497, 2430508, 2430509, 2430492, 2430493, 2430500, 2430501, 2430498, 2430499, 2430504, 2430505, 2430506, 2430507, 2430490, 2430491, 2430494, 2430495, 2430502, 2430503, 2430667, 2430668, 2430678, 2430679, 2430682, 2430684, 2430665, 2430666, 2430644, 2430645, 2430653, 2430654, 2430656, 2430657, 2430675, 2430676, 2430687, 2430688, 2430689, 2430690, 2430646, 2430647, 2430651, 2430652, 2430658, 2430659, 2430663, 2430664, 2430671, 2430672, 2430642, 2430643, 2430660, 2430662, 2430669, 2430670, 2430673, 2430674, 2430680, 2430681, 2430685, 2430686, 2430648, 2430650 (0805)	1/8W		200 - 300	±100	
			301 - 1000	±50	
2430514, 2430515, 2430534, 2430535, 2430518, 2430519, 2430524, 2430525, 2430530, 2430531, 2430538, 2430539, 2430510, 2430511, 2430520, 2430521, 2430522, 2430523, 2430516, 2430517, 2430528, 2430529, 2430532, 2430533, 2430540, 2430541, 2430512, 2430513, 2430526, 2430527, 2430536, 2430537 (1206)	1/4W	-55~+155°C	-	50 - 100	±200
			101 - 300	±100	
			301 - 1000	±50	
2430404, 2430405, 2430408, 2430409, 2430394, 2430395, 2430412, 2430413, 2430397, 2430398, 2430410, 2430411, 2430392, 2430393, 2430399, 2430400, 2430406, 2430407, 2430401, 2430402 (2010)	3/4W	-55~+155°C	50 - 100	±200	
			101 - 300	±100	
			301 - 1000	±50	
2430544, 2430545, 2430546, 2430547, 2430554, 2430555, 2430554, 2430555, 2430560, 2430561, 2430566, 2430567, 2430542, 2430543, 2430548, 2430549, 2430552, 2430553, 2430568, 2430569, 2430564, 2430565, 2430570, 2430571, 2430550, 2430551, 2430556, 2430557, 2430562, 2430563 (2512)	1W	-55~+155°C	50 - 100	±200	
			101 - 300	±100	
			301 - 1000	±50	

Environmental Characteristics

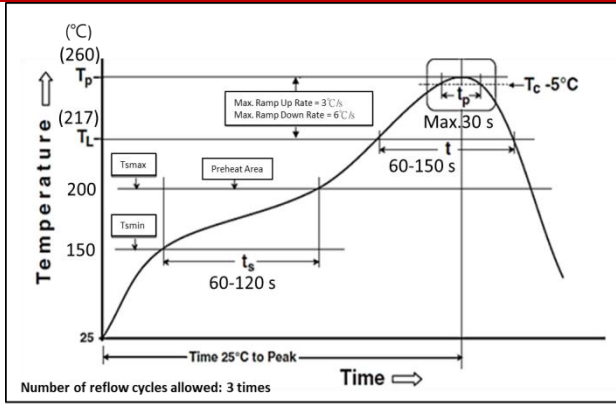
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	MIL-STD-202 Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	±1%	JIS-C-5201-1 4.13 RCWV*2.5 or Max. overload voltage whichever is lower for 5seconds
Insulation Resistance	>1000MΩ	MIL-STD-202 Method 302 Apply 100V _{DC} for 1 minute
Endurance	±1%	MIL-STD-202 Method 108A 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±0.5%	MIL-STD-202 Method 103B 40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Bending Strength	As Spec.	JIS-C-5201-1 4.33 Bending amplitude 3mm for 10 seconds
Solderability	95% min. coverage	MIL-STD-202 Method 208H 245±5°C for 3 seconds
Resistance to Soldering Heat	±0.5%	MIL-STD-202 Method 210E 260±5°C for 10 seconds
Dielectric Withstand Voltage	By Type	MIL-STD-202 Method 301 Apply Max. Overload Voltage for 1 minute
Thermal Shock	±0.5%	MIL-STD-202 Method 107G -55°C ~150°C, 100 cycles
Low Temperature Operation	±0.5%	JIS-C-5201-1 4.36 1 hour, -65°C followed by 45 minutes of RCWV

RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

■ **Storage Temperature: 15~28°C; Humidity < 80%RH**

■ **Shelf Life: 2 years from production date.**

Soldering Condition (IPC/JEDEC J-STD-020)



Packaging

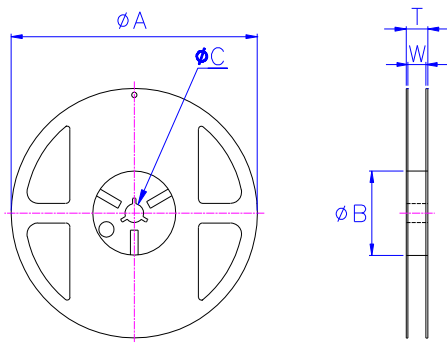
Type	nA	nB	nC	W	T	Paper Tape (EA)	Emboss Plastic Tape (EA)
2430448, 2430449, 2430463, 2430464, 2430467, 2430468, 2430443, 2430444, 2430445, 2430446, 2430455, 2430456, 2430423, 2430424, 2430430, 2430432, 2430435, 2430436, 2430452, 2430454, 2430459, 2430460, 2430470, 2430471, 2430700, 2430701, 2430707, 2430708, 2430704, 2430705, 2430421, 2430422, 2430433, 2430434, 2430441, 2430442, 2430709, 2430710, 2430693, 2430694, 2430697, 2430698, 2430416, 2430417, 2430426, 2430427, 2430428, 2430429, 2430439, 2430440, 2430414, 2430415, 2430437, 2430438, 2430450, 2430451, 2430461, 2430462, 2430418, 2430420, 2430457, 2430458, 2430465, 2430466, 2430711, 2430713, 2430714, 2430715, 2430691, 2430692, 2430702, 2430703, 2430695, 2430696, 2430716, 2430717	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	10,000	
2430477, 2430478, 2430482, 2430483, 2430474, 2430476, 2430472, 2430473, 2430472, 2430473, 2430479, 2430480, 2430484, 2430485, 2430486, 2430487, 2430620, 2430621, 2430626, 2430628,	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-

2430586, 2430587, 2430596, 2430597, 2430622, 2430623, 2430614, 2430615, 2430631, 2430632, 2430638, 2430639, 2430636, 2430637, 2430592, 2430593, 2430608, 2430609, 2430574, 2430575, 2430577, 2430578, 2430584, 2430585, 2430594, 2430595, 2430616, 2430617, 2430634, 2430635, 2430579, 2430580, 2430581, 2430583, 2430590, 2430591, 2430603, 2430604, 2430618, 2430619, 2430572, 2430573, 2430588, 2430589, 2430599, 2430600, 2430610, 2430611, 2430624, 2430625, 2430601, 2430602, 2430606, 2430607, 2430612, 2430613, 2430629, 2430630, 2430640, 2430641							
2430488, 2430489, 2430496, 2430497, 2430508, 2430509, 2430492, 2430493, 2430500, 2430501, 2430498, 2430499, 2430504, 2430505, 2430506, 2430507, 2430490, 2430491, 2430494, 2430495, 2430502, 2430503, 2430667, 2430668, 2430678, 2430679, 2430682, 2430684, 2430665, 2430666, 2430644, 2430645, 2430653, 2430654, 2430656, 2430657, 2430675, 2430676, 2430687, 2430688, 2430689, 2430690, 2430646, 2430647, 2430651, 2430652, 2430658, 2430659, 2430663, 2430664, 2430671, 2430672, 2430642, 2430643, 2430660, 2430662, 2430669, 2430670, 2430673, 2430674, 2430680, 2430681, 2430685, 2430686, 2430648, 2430650	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
2430514, 2430515, 2430534, 2430535, 2430518, 2430519, 2430524, 2430525, 2430530, 2430531, 2430538, 2430539, 2430510, 2430511, 2430520, 2430521, 2430522, 2430523, 2430516, 2430517, 2430528, 2430529, 2430532, 2430533, 2430540, 2430541, 2430512, 2430513, 2430526, 2430527, 2430536, 2430537	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
2430404, 2430405, 2430408, 2430409, 2430394, 2430395,	178.0±1.0	60.0+1.0	13.5±0.7	13.5±1.00	15.5±1.0	-	4,000

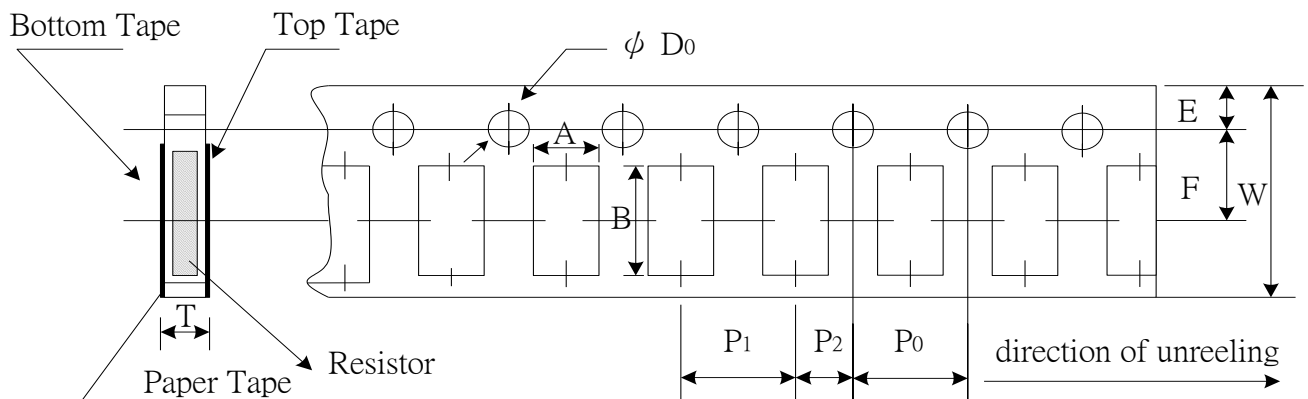
2430412, 2430413, 2430397, 2430398, 2430410, 2430411, 2430392, 2430393, 2430399, 2430400, 2430406, 2430407, 2430401, 2430402								
2430544, 2430545, 2430546, 2430547, 2430554, 2430555, 2430554, 2430555, 2430560, 2430561, 2430566, 2430567, 2430542, 2430543, 2430548, 2430549, 2430552, 2430553, 2430568, 2430569, 2430564, 2430565, 2430570, 2430571, 2430550, 2430551, 2430556, 2430557, 2430562, 2430563	178.0±1.0	60.0±1.0	13.5±0.7	13.5±1.00	15.5±1.0	-	4,000	

Packaging Quantity & Reel Specifications

Unit :mm



Paper Tape Specifications



Type	A	B	W	E	F	P0	P1	P2	ψD0	T
2430448, 2430449, 2430463, 2430464, 2430467, 2430468,	0.70±0.05	1.16±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.55±0.05	0.40±0.03

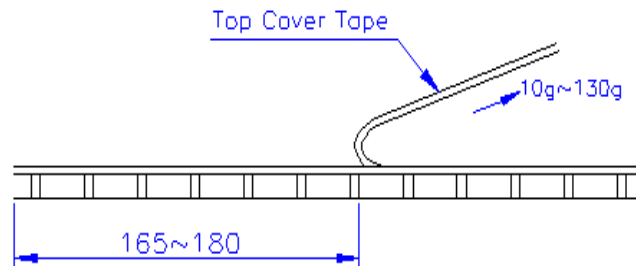
Thin Film Chip Resistors



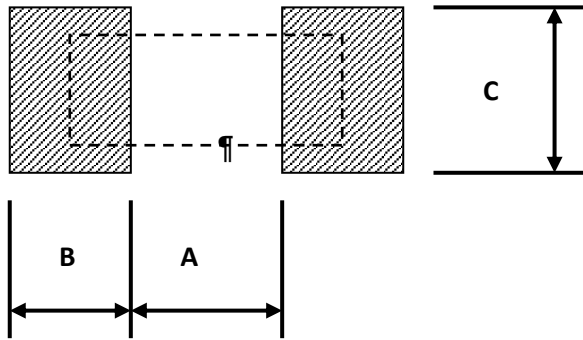
2430443, 2430444, 2430445, 2430446, 2430455, 2430456, 2430423, 2430424, 2430430, 2430432, 2430435, 2430436, 2430452, 2430454, 2430459, 2430460, 2430470, 2430471, 2430700, 2430701, 2430707, 2430708, 2430704, 2430705, 2430421, 2430422, 2430433, 2430434, 2430441, 2430442, 2430709, 2430710, 2430693, 2430694, 2430697, 2430698, 2430416, 2430417, 2430426, 2430427, 2430428, 2430429, 2430439, 2430440, 2430414, 2430415, 2430437, 2430438, 2430450, 2430451, 2430461, 2430462, 2430418, 2430420, 2430457, 2430458, 2430465, 2430466, 2430711, 2430713, 2430714, 2430715, 2430691, 2430692, 2430702, 2430703, 2430695, 2430696, 2430716, 2430717											
2430477, 2430478, 2430482, 2430483, 2430474, 2430476, 2430472, 2430473, 2430472, 2430473, 2430479, 2430480, 2430484, 2430485, 2430486, 2430487, 2430620, 2430621, 2430626, 2430628, 2430586, 2430587, 2430596, 2430597, 2430622, 2430623, 2430614, 2430615, 2430631, 2430632, 2430638, 2430639, 2430636, 2430637, 2430592, 2430593, 2430608, 2430609, 2430574, 2430575, 2430577, 2430578, 2430584, 2430585, 2430594, 2430595, 2430616, 2430617, 2430634, 2430635, 2430579, 2430580, 2430581, 2430583, 2430590, 2430591, 2430603, 2430604, 2430618, 2430619, 2430572, 2430573, 2430588, 2430589, 2430599, 2430600, 2430610, 2430611, 2430624, 2430625, 2430601, 2430602, 2430606, 2430607, 2430612, 2430613, 2430629, 2430630, 2430640, 2430641	1.10±0.05	1.90±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.60±0.03	
2430488, 2430489, 2430496, 2430497, 2430508, 2430509, 2430492, 2430493, 2430500, 2430501, 2430498, 2430499, 2430504, 2430505, 2430506,	1.60±0.05	2.37±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05	

2430507, 2430490, 2430491, 2430494, 2430495, 2430502, 2430503, 2430667, 2430668, 2430678, 2430679, 2430682, 2430684, 2430665, 2430666, 2430644, 2430645, 2430653, 2430654, 2430656, 2430657, 2430675, 2430676, 2430687, 2430688, 2430689, 2430690, 2430646, 2430647, 2430651, 2430652, 2430658, 2430659, 2430663, 2430664, 2430671, 2430672, 2430642, 2430643, 2430660, 2430662, 2430669, 2430670, 2430673, 2430674, 2430680, 2430681, 2430685, 2430686, 2430648, 2430650											
2430514, 2430515, 2430534, 2430535, 2430518, 2430519, 2430524, 2430525, 2430530, 2430531, 2430538, 2430539, 2430510, 2430511, 2430520, 2430521, 2430522, 2430523, 2430516, 2430517, 2430528, 2430529, 2430532, 2430533, 2430540, 2430541, 2430512, 2430513, 2430526, 2430527, 2430536, 2430537	2.00±0.05	3.55±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05	

- Peel force of top cover tape¹⁾
- The peel speed shall be about 300mm/min±5%¹⁾
- The peel force of top cover tape shall be between 10 to 100g¹⁾



Type	A	B	C
2430448, 2430449, 2430463, 2430464, 2430467, 2430468, 2430443, 2430444, 2430445, 2430446, 2430455, 2430456, 2430423, 2430424, 2430430, 2430432, 2430435, 2430436, 2430452, 2430454, 2430459, 2430460, 2430470, 2430471, 2430700, 2430701, 2430707, 2430708, 2430704, 2430705, 2430421, 2430422, 2430433, 2430434, 2430441, 2430442, 2430709, 2430710, 2430693, 2430694, 2430697, 2430698, 2430416, 2430417, 2430426, 2430427, 2430428, 2430429, 2430439, 2430440, 2430414, 2430415, 2430437, 2430438, 2430450, 2430451, 2430461, 2430462, 2430418, 2430420, 2430457, 2430458, 2430465, 2430466, 2430711, 2430713, 2430714, 2430715, 2430691, 2430692, 2430702, 2430703, 2430695, 2430696, 2430716, 2430717	0.50	0.50	0.60±0.2
2430477, 2430478, 2430482, 2430483, 2430474, 2430476, 2430472, 2430473, 2430472, 2430473, 2430479, 2430480, 2430484, 2430485, 2430486, 2430487, 2430620, 2430621, 2430626, 2430628, 2430586, 2430587, 2430596, 2430597, 2430622, 2430623, 2430614, 2430615, 2430631, 2430632, 2430638, 2430639, 2430636, 2430637, 2430592, 2430593, 2430608, 2430609, 2430574, 2430575, 2430577, 2430578, 2430584, 2430585, 2430594, 2430595, 2430616, 2430617, 2430634, 2430635, 2430579, 2430580, 2430581, 2430583, 2430590, 2430591, 2430603, 2430604, 2430618, 2430619, 2430572, 2430573, 2430588, 2430589, 2430599, 2430600, 2430610, 2430611, 2430624, 2430625, 2430601, 2430602, 2430606, 2430607, 2430612, 2430613, 2430629, 2430630, 2430640, 2430641	0.80	1.00	0.90±0.2
2430488, 2430489, 2430496, 2430497, 2430508, 2430509, 2430492, 2430493, 2430500, 2430501, 2430498, 2430499, 2430504, 2430505, 2430506, 2430507, 2430490, 2430491, 2430494, 2430495, 2430502, 2430503, 2430667, 2430668, 2430678, 2430679, 2430682, 2430684, 2430665, 2430666, 2430644, 2430645, 2430653, 2430654, 2430656, 2430657, 2430675, 2430676, 2430687, 2430688, 2430689, 2430690, 2430646, 2430647, 2430651, 2430652, 2430658, 2430659, 2430663, 2430664, 2430671, 2430672, 2430642, 2430643, 2430660, 2430662, 2430669, 2430670, 2430673, 2430674, 2430680, 2430681, 2430685, 2430686, 2430648, 2430650	1.00	1.00	1.35±0.2
2430514, 2430515, 2430534, 2430535, 2430518, 2430519, 2430524, 2430525, 2430530, 2430531, 2430538, 2430539, 2430510, 2430511, 2430520, 2430521, 2430522, 2430523, 2430516, 2430517, 2430528, 2430529, 2430532, 2430533, 2430540, 2430541, 2430512, 2430513, 2430526, 2430527, 2430536, 2430537	2.00	1.15	1.70±0.2



2430404, 2430405, 2430408, 2430409, 2430394, 2430395, 2430412, 2430413, 2430397, 2430398, 2430410, 2430411, 2430392, 2430393, 2430399, 2430400, 2430406, 2430407, 2430401, 2430402	3.60	1.40	2.50±0. 2
2430544, 2430545, 2430546, 2430547, 2430554, 2430555, 2430554, 2430555, 2430560, 2430561, 2430566, 2430567, 2430542, 2430543, 2430548, 2430549, 2430552, 2430553, 2430568, 2430569, 2430564, 2430565, 2430570, 2430571, 2430550, 2430551, 2430556, 2430557, 2430562, 2430563	4.90	1.60	3.10±0. 2