



# SYNTON-TECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	1/11
Date :	2006.08.01

### 1. INTRODUCTION

Cement resistors are manufactured by winding the ceramic rods with metal alloy resistance wire and put it in a fireproof ceramic box then concrete with non-flameable and heat-resistant cement.

### 2. FEATURES

- Heat and flame resistant!
- Completely insulated character suitable for printed circuit board.
- For high resistance value, the winding core will be replaced by metal oxide film cutting core (RS type).
- Non inductive type are available on request!

APPROVED	CHECKED	DESIGNED	REMARK	DOCUMENT NO.
Carol	May	Chen		0201010037



**SYNTON-TECH CORPORATION**

**CEMENT POWER RESISTORS  
( SQP TYPE )**

File No. : SQP-02

Version : B

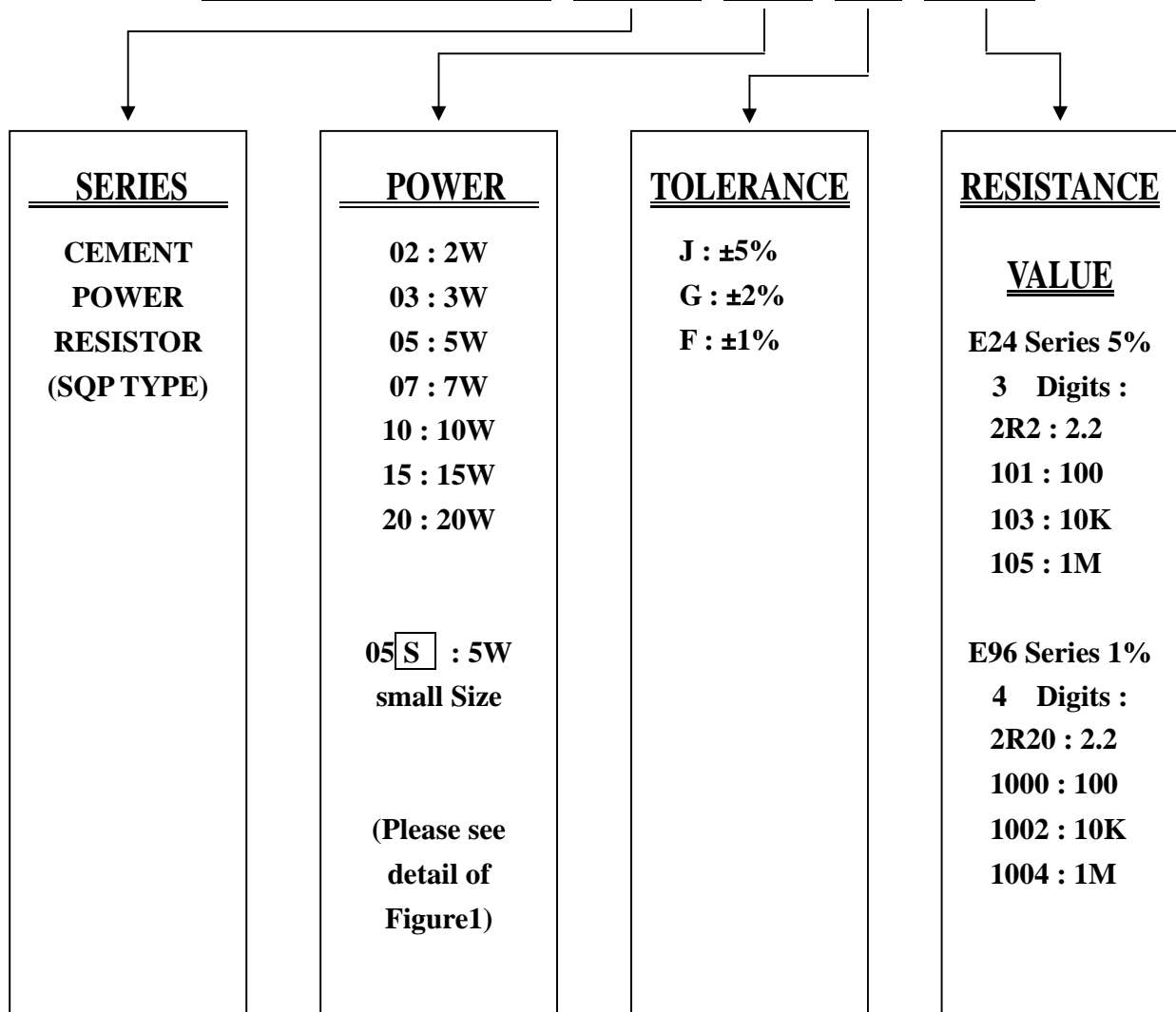
Page : 2/11

Date : 2006.08.01

### 3. EXPLANATIONS OF ORDERING CODE

**DESCRIPTION : SQP 5W 5% 10K**

**SYNTON CODE : SQP 05 J 103**





# SYNTON-TECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	3/11
Date :	2006.08.01

### 4. ELECTRICAL CHARACTERISTICS

STYLE	SQP-02	SQP-03	SQP-05S	SQP-05	SQP-07	SQP-10	SQP-15	SQP-20	
Power Rating at 70	2W	3W	5W	5W	7W	10W	15W	20W	
Operating Temp. Range	—55 + 155								
Maximun Working Volt.	250V	350V	350V	350V	500V	500V	500V	500V	
Maximun Overload Volt.	500V	700V	700V	700V	1000V	1000V	1000V	1000V	
Dielectric withstanding Volt.	500V	700V	700V	700V	1000V	1000V	1000V	1000V	
Value Range $\pm$ 5% (W.W)	SPECIAL	0.01 ~ 0.09	0.01 ~ 0.09	0.01 ~ 0.09	0.01 ~ 0.09	0.01 ~ 0.09	0.01 ~ 0.09	0.01 ~ 0.9	0.01 ~ 0.9
	STANDARD	0.1 ~ 150	0.1 ~ 150	0.1 ~ 150	0.1 ~ 200	0.1 ~ 300	0.1 ~ 300	1 ~ 500	1 ~ 500
Value Range $\pm$ 5% (R.S)	150 ~ 10K	150 ~ 33K	150 ~ 33K	150 ~ 33K	300 ~ 50K	300 ~ 50K	500 ~ 150K	500 ~ 150K	
Temp. Coefficient	$\pm$ 300 ppm /								

Figure 1

\* Standard resistance is at the above list, below or over this resistance on request.

\* Non-Inductive type up to 50 only.

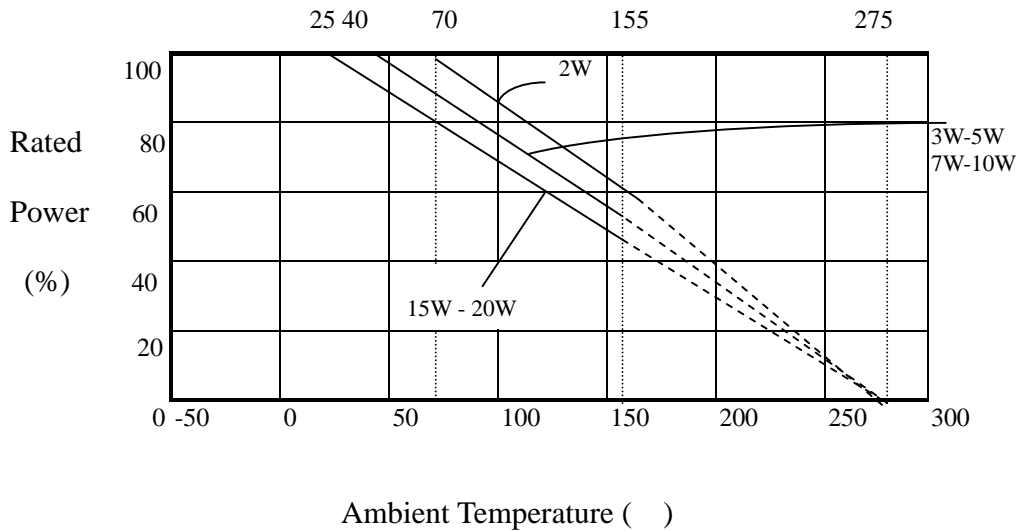


# SYNTON-TECH CORPORATION

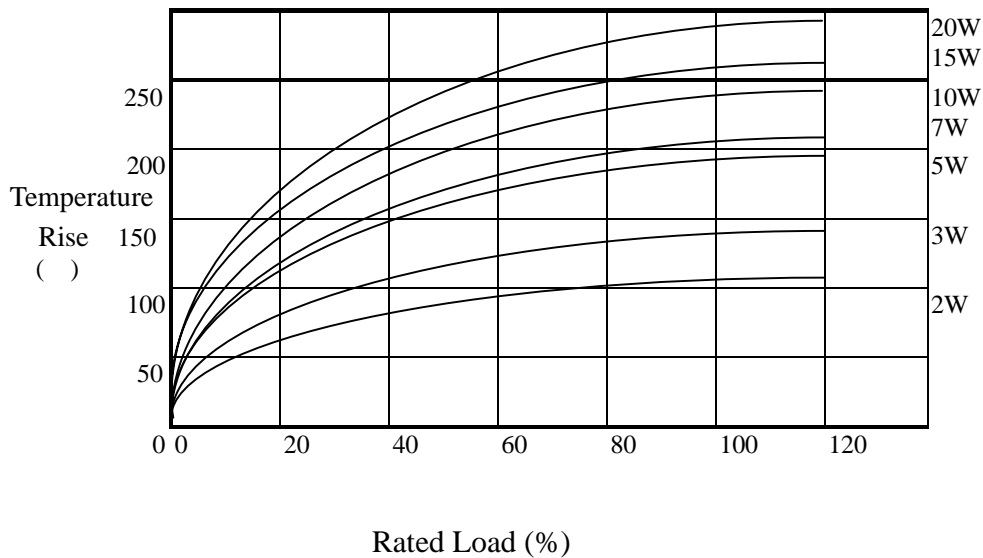
## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	4/11
Date :	2006.08.01

### 5. DERATING CURVE



### 6. TEMPERATURE RISE



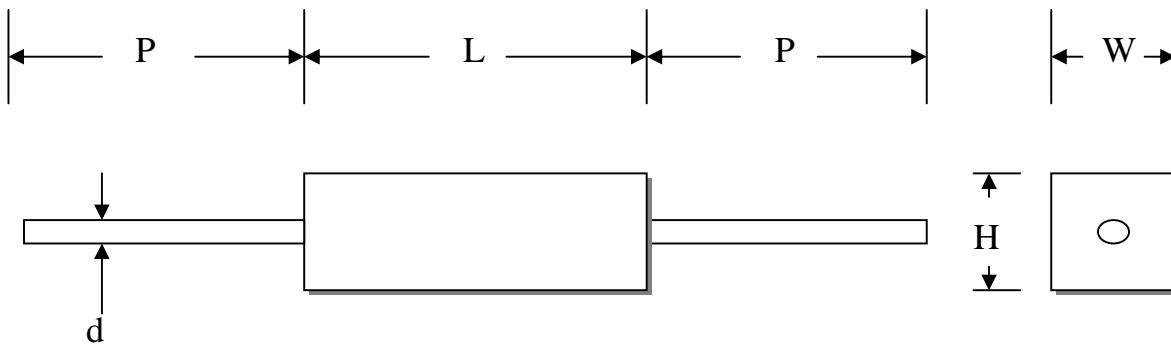


**SYNTON-TECH CORPORATION**

**CEMENT POWER RESISTORS  
( SQP TYPE )**

File No. :	SQP-02
Version :	B
Page :	5/11
Date :	2006.08.01

## 7. DIMENSIONS



Unit:m/m

TYPE	POWER	L	W	H	d	P
SQP-02	2W	18.0±1.5	7.0±1.5	7.0±1.5	0.8±0.1	30±3
SQP-03	3W	22.0±1.5	8.0±1.5	8.0±1.5	0.8±0.1	30±3
SQP-05S	5W	22.0±1.5	8.0±1.5	8.0±1.5	0.8±0.1	30±3
SQP-05	5W	22.0±1.5	10.0±1.5	9.0±1.5	0.8±0.1	30±3
SQP-07	7W	35.0±1.5	10.0±1.5	9.0±1.5	0.8±0.1	30±3
SQP-10	10W	48.0±1.5	10.0±1.5	9.0±1.5	0.8±0.1	30±3
SQP-15	15W	48.0±1.5	12.5±1.5	11.5±1.5	0.8±0.1	30±3
SQP-20	20W	60.0±1.5	14.5±1.5	13.5±1.5	0.8±0.1	30±3

Figure 2



**SYNTON-TECH CORPORATION**

**CEMENT POWER RESISTORS  
( SQP TYPE )**

File No. : SQP-02

Version : B

Page : 6/11

Date : 2006.08.01

## **8. ENVIRONMENTAL CHARACTERISTICS**

### **(1) Short-Time Overload**

Test Method : 2.5 time RC WV for 5 seconds.

Acceptance Standard :  $\pm (2\% + 0.05)$

### **(2) Temperature Coefficient of Resistance**

Test Method : -55 ~ 125

Acceptance Standard :  $\pm 300\text{ppm/}$

### **(3) Insulation Resistance**

Test Method : in V-Block

Acceptance Standard :  $> 100\text{M}$

### **(4) Solderability**

Test Method : 260 for  $5 \pm 0.5$ , 3 seconds

Acceptance Standard : 95% min. covering

### **(5) Resistance to Solvent**

Test Method : Trichroethane for 1 min. with ultrasonic

Acceptance Standard : no deterioration of coatings and markings

### **(6) Terminal Strength**

Test Method : Direct load for 10 sec. In the direction  
of the terminal leads

Acceptance Standard : 2.54kg (24.5N)

### **(7) Pules overload**

Test Method : 4 times RC WV 10000 cycles  
(1 sec. on 25 sec. off)

Acceptance Standard :  $\pm(2\% + 0.05)$



# SYNTON-TECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	7/11
Date :	2006.08.01

### (8) Load Life in Humidity

Test Method :  $40 \pm 2$  , 90~95% RH at RCWV for 1000 hrs.

(1.5 hrs. on, 0.5 hrs. off)

Acceptance Standard :  $\pm (5\% + 0.05)$  )

### (9) Load Life

Test Method : 70 at RCWV for 1000 hrs.

(1.5 hrs. on, 0.5 hrs. off)

Acceptance Standard :  $\pm (5\% + 0.05)$  )

### (10) Temperature Cycling

Test Method : -65 room temp. 150 room temp.  
for 5 cycles

Acceptance Standard :  $\pm (2\% + 0.05)$  )

### (11) Resistance to Soldering Heat

Test Method : Tensile :  $350 \pm 10$  for  $3 \pm 0.5$  seconds

Acceptance Standard :  $\pm (1\% + 0.05)$  )

### ● Rated continuous Working Voltage (RCWV)

$$= \sqrt{\text{power rating} \times \text{resistance value}}$$



# SYNTECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	8/11
Date :	2006.08.01



### Test Report

SYNTECH CORPORATION

16F-3, NO. 79, FAR EAST WORLD CENTER SEC. 1, HSIN TAI  
WU ROAD, HSI-CHIH TAIPEI HSIEN, TAIWAN, R. O. C.  
DONG GUAN PLANT  
SHUI KOU INDUSTRIAL ZONE, DA LANG,  
DNG GUAN, GUANG DONG, CHINA

Report No. : CE/2006/73554

Date : 2006/07/19

Page : 1 of 4



The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description : CEMENT POWER RESISTORS  
 Style/Item No : SQP, SQM, SQT, SQS, SQF, SQZ, SQH, SQHG TYPE  
 Sample Received : 2006/07/12  
 Testing Period : 2006/07/12 TO 2006/07/19

-----  
Test Result(s) : - Please see the next page(s) -

Daniel Yen, M.P., Operation Manager  
 Signed for and on behalf of  
 SGS TAIWAN LTD.

The content of this PDF file is in accordance with the original issued reports for reference only. This Test Report cannot be reproduced, except in full, without prior written permission of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS TAIWAN LIMITED NO. 156-1, Wu Kung Road, WuKung Industrial Zone, Taipei county, Taiwan.  
t(886-2) 22999999 f(886-2) 2299-3237 www.sgs.com.tw

Confidential, Do Not Disseminate.





# SYNTECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	9/11
Date :	2006.08.01



### Test Report

SYNTECH CORPORATION  
16F-3, NO. 79, FAR EAST WORLD CENTER SEC. 1, HSIEN TAI  
WU ROAD, HSI-CHIH TAIPEI HSIEN, TAIWAN, R. O. C.  
DONG GUAN PLANT  
SHUI KOU INDUSTRIAL ZONE, DA LANG,  
DNG GUAN, GUANG DONG, CHINA

Report No. : CE/2006/73554  
Date : 2006/07/19  
Page : 2 of 4



#### Test Result(s)

PART NAME NO.1 : MIXED ALL PARTS OF WHITE BODY

Test Item (s):	Unit	Method	MDL	Result No.1
<b>PBBs (Polybrominated biphenyls)</b>	---	---	---	---
Monobromobiphenyl	%	With reference to USEPA3540C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Fentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
<b>Total PBBs (Polybrominated biphenyls)/Sum of above</b>	%		-	N.D.
<b>PBBEs(PBDEs) (Polybrominated biphenyl ethers)</b>	---	---	---	---
Monobromobiphenyl ether	%	With reference to USEPA3540C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Fentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
<b>Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above</b>	%		-	N.D.
<b>Total of Mono to Nona-brominated biphenyl ether. (Note 4)</b>	%		-	N.D.

The content of this PDF file is in accordance with the original issued reports for reference only. This Test Report cannot be reproduced, except in full, without prior written permission of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS TAIWAN LIMITED NO. 136-1, Wu Kung Road, WUKU Industrial Zone, Taipei county, Taiwan. (886-2) 22969699 (886-2) 2296-3237 www.sgs.com.tw



# SYNTECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	10/11
Date :	2006.08.01



### Test Report

SYNTECH CORPORATION  
16F-3, NO. 79, FAR EAST WORLD CENTER SEC. 1, HSIN TAI  
WU ROAD, HSI-CHIH TAIPEI HSIEN, TAIWAN, R. O. C.  
DONG GUAN PLANT  
SHUI KOU INDUSTRIAL ZONE, DA LANG,  
DNG GUAN, GUANG DONG, CHINA

Report No. : CE/2006/73554  
Date : 2006/07/19  
Page : 3 of 4



Test Item (s):	Unit	Method	MDL	Result
				No. 1
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.

- NOTE: (1) N.D. = Not Detected (<MDL)  
(2) ppm = mg/kg  
(3) MDL = Method Detection Limit  
(4) Decabromobiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.  
(5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.  
(6) " - " = Not Regulation  
(7) " --- " = Not Applicable

The content of this PDF file is in accordance with the original issued reports for reference only. This Test Report cannot be reproduced, except in full, without prior written permission of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS TAIWAN LIMITED

NO. 136-1, Wu Kung Road, WuKou Industrial Zone, Taipei county, Taiwan.  
t(886-2) 22993039 f(886-2) 2299-3237 www.sgs.com.tw

Confidential, Do Not Disseminate.



# SYNTECH CORPORATION

## CEMENT POWER RESISTORS ( SQP TYPE )

File No. :	SQP-02
Version :	B
Page :	11/11
Date :	2006.08.01



### Test Report

SYNTECH CORPORATION  
 16F-3, NO. 79, FAR EAST WORLD CENTER SEC. 1, HSIN TAI  
 WU ROAD, HSI-CHIH TAIPEI HSIEN, TAIWAN, R. O. C.  
 DONG GUAN PLANT  
 SHUI KOU INDUSTRIAL ZONE, DA LANG,  
 DNG GUAN, GUANG DONG, CHINA

Report No. : CE/2006/73554  
 Date : 2006/07/19  
 Page : 4 of 4



\*\* End of Report \*\*

The content of this PDF file is in accordance with the original issued reports for reference only. This Test Report cannot be reproduced, except in full, without prior written permission of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS TAIWAN LIMITED

NO. 156-1, Wu Kung Road, WuKu Industrial Zone, Taipei county, Taiwan.  
 t(886-2) 2299-9399 f(886-2) 2290-3237 www.sgs.com.tw

Confidential, Do Not Disseminate.