ORDERING INFORMATION (OBSOLETE*)

CSR XX B 565 K M

TYPE
Capacitors, Fixed, Solid Electrolyte, Tantalum
Established Reliability

STYLE
Tubular Case — Always Sleeved

09 — Miniature — T222
13 — Standard — T212
21 — Standard, low ESR — T262
23 — Extended Range — T242
33 — Extended Range, Low Leakage — T252
91 — Non-Polar — T213

VOLTAGE

Symbol	VDC Working 85°C	VDC Working 125°C	VDC Surge 85°C	VDC Surge 125°C
B	6	4	8	5
C	10	7	13	9
D	15	10	20	12
E	20	13	26	16
F	35	23	46	28
G	50	33	65	40
H	75	50	98	64
J	100	67	130	86

FAILURE RATE LEVEL IN % PER 1000 HOURS

GRADED	EXPONENTIAL
A — Not Applicable	M — 1%/k hrs.
B — 0.1%/k hrs.	P — 0.1%/k hrs.
C — 0.01%/k hrs.	R — 0.01%/k hrs.
D — 0.001%/k hrs.	S — 0.001%k hrs.

CAPACITANCE TOLERANCE
J — ± 5%
K — ± 10%
M — ± 20%

CAPACITANCE
Expressed in picofarads (1 microfarad = 1,000,000 picofarads). First two digits represent significant figures. Last digit specifies the number of zeros to follow.

Examples
565 — 5,600,000 = 5.60 µF 563 — 56,000 = .056 µF
564 — 560,000 = .56 µF

* This Military Part Numbering System is obsolete in accordance with the current specifications. The correct current designation for a CSR part number is the MIL Specification Number, followed by the Specification (slash) Sheet Number and Dash Number (i.e. — MIL-PRF-39003/01-2270). However, the part number breakdown shown above is still widely used and is shown for reference.

MILITARY CAPACITOR APPROVED FAILURE RATE LEVELS AND MARKINGS PER MIL-PRF-39003 FOR CSR09 (T222 A & B CASE SIZES ONLY), CSR13 (T212), CSR21 (T262), CSR23 (T242) & CSR33 (T252) CAPACITORS

KEMET APPROVED FAILURE RATE LEVELS — MIL-PRF-39003/H (EXPONENTIAL)

STYLE	DESCRIPTION	KEMET SERIES	APPROVED FAILURE RATE LEVEL
CSR09	Polar-Subminiature	T222	S (0.001%/k hrs.)
CSR13	Polar-Standard MIL Range	T212	S (0.001%/k hrs.)
CSR21	Polar-Standard Low ESR MIL Range	T262	S (0.001%/k hrs.)
CSR23	Polar-Extended Range	T242	S (0.001%/k hrs.)

STYLE	DESCRIPTION	KEMET SERIES	APPROVED FAILURE RATE LEVEL
CSR33	Polar-Extended Range Low Leakage	T252	S (0.001%/k hrs.)
CSR91	Non-Polar	T213	S (0.001%/k hrs.)

MILITARY MARKING

A CASE

39003 — Military specification number
01 - K — Specification sheet number and trademark
9002J — Military dash number and "J" for JAN
+333 — Polarity, date code (1st digit indicates year and the next two digits indicate the week)
XY — Lot symbol

C & D CASES

M39003 — Military specification number
01 - 8222J — Specification sheet number, Military dash number, and "J" for JAN
+8.2 µF — Positive terminal identifier and capacitance value
10% 50V — Capacitance tolerance and voltage
31433 — Source code
0333 XY K — Date code, lot code, and trademark

B CASE

M39003 — Military specification number
01 - — Specification sheet number
8006J — Military dash number and "J" for JAN
31433 — Source code
+333 XY — Polarity, date code (1st digit indicates year and the next two digits indicate the week), lot symbol

CSR91 (T213) CAPACITORS A, B, C & D CASES

M39003 — Military specification number
04 - 0980J — Specification sheet number, Military dash number, and "J" for JAN
1 µF — Capacitance value
10% 20VNP — Capacitance tolerance and voltage rating
0333 XY 31433 — Date code, lot code, and source code

(See page 38 for CSS Marking)

KEMET APPROVED FAILURE RATE LEVELS — MIL-PRF-39003/H (GRADED)

STYLE	DESCRIPTION	KEMET SERIES	APPROVED FAILURE RATE LEVEL*
CSR09	Polar-Subminiature	T222	D (0.001%/k hrs.)
CSR13*	Polar-Standard MIL Case	T212	D (0.001%/k hrs.)
CSS13**	Polar-Standard MIL Case	T216	C (0.01%/k hrs.)
CSR21	Polar-Standard Low ESR MIL Case	T262	D (0.001%/k hrs.)
CSR23*	Polar-Extended Range	T242	D (0.001%/k hrs.)

*Not approved to 'D' Failure Rate Level on all voltages and capacitance values.
**MIL-PRF-39003/10 for space applications.

STYLE	DESCRIPTION	KEMET SERIES	APPROVED FAILURE RATE LEVEL*
CSR33*	Polar-Extended Range Low Leakage	T252	D (0.001%/k hrs.)
CSS33**	Polar-Extended Range Low Leakage	T256	C (0.01%/k hrs.)
CSR91*	Non-Polar	T213	D (0.001%/k hrs.)

*Not approved to 'D' Failure Rate Level on all voltages and capacitance values.
**MIL-PRF-39003/10 for space applications.

PERFORMANCE CHARACTERISTICS

- CAPACITANCE/VOLTAGE RANGE: .0023-1200µF, 6-125 Volts.
- CAPACITANCE TOLERANCE: Available in standard EIA values with ±20%, ±10% and ±5% tolerances.
- DISSIPATION FACTOR: Maximum DF limits are shown in corresponding series part number listings on pages 7-41. See Application Notes Section, page 76 for additional description.
- DC LEAKAGE CURRENT: Each corresponding part number table lists maximum leakage current for each capacitor on pages 7-41. See Application Notes Section, page 76 for additional description.
- RATED VOLTAGE; WORKING VOLTAGE; SURGE VOLTAGE; REVERSE VOLTAGE: See Application Notes Section, Pages 76 & 77 for description.
- IMPEDANCE and ESR: See Application Notes Section, pages 77 & 78 for description. Reference ESR values are shown for commercial hermetically sealed capacitors on page 19.
- AC RIPPLE VOLTAGE: Permissible AC ripple voltage is related to the ESR of the capacitor and the power dissipation capabilities of a particular case size. Thermal capacities for the various case sizes have been determined empirically and are listed below. For additional description see page 78.

Standard Case Size	Watts	T222
A	.09	.070
B	.100	.090
C	.125	—
D	.180	—

Maximum Power Dissipation: 25°C Ambient

- ENVIRONMENTAL CONSIDERATIONS:
  A. Shock Test: MIL-STD-202, Method 213
  B. Thermal Shock, MIL-STD-202, Method 107, Condition B.
  C. Moisture Resistance: MIL-STD-202, Method 106.
  D. Solderability: MIL-STD-202, Method 208

For additional Environmental Test Information see pages 80, 81 and 82.

- LEAD MATERIAL: Standard leads are solder-coated nickel per MIL-STD-1276.
- INSULATING SLEEVES: The standard insulating material used in transparent high temperature plastic, having 2000 volt dielectric strength, excellent dimensional stability and chemical and cold flow resistance.
- LEAD TAPE and REEL: Reeling per specification RS-296. See pages 71 and 73 for additional information.