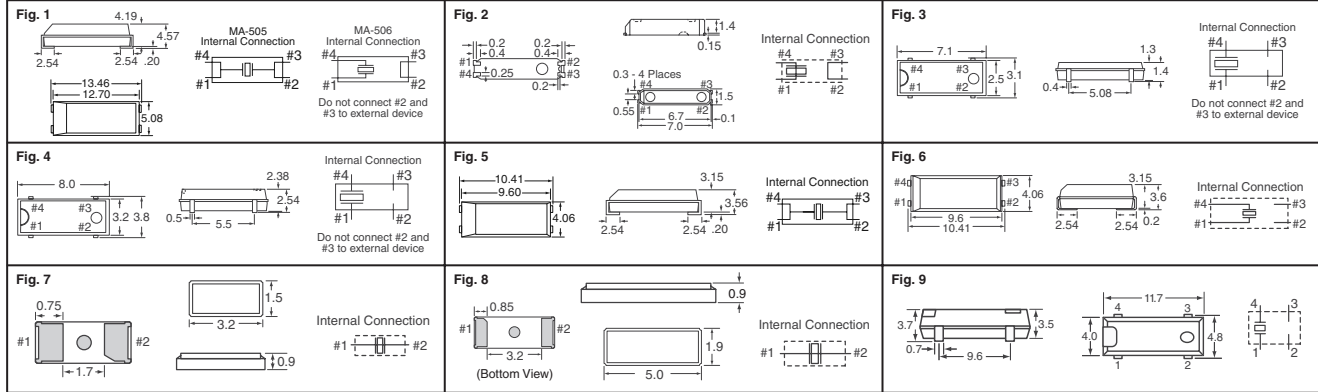


EPSON TOYOCOM Surface Mount Quartz Crystal Products



Features: • Capable of withstanding reflow temperatures of 260°C for 20 seconds • Suitable for use in today's high density surface mount boards

| Package | FC-135 | FC-255 | MA-406 | MA-505 | MA-506 | MC-146 | MC-156 | MC-306 | MC-405 | MC-406 |
|-----------------------|---------------|---------------|------------------|---------------|---------------|---------------|---------------|-----------------|---------------|---------------|
| Operating Temperature | -40°C - 85°C | -40°C - 85°C | -20°C - 70°C | -20°C - 70°C | -20°C - 70°C | -40°C - 85°C | -40°C - 85°C | -40°C - 85°C | -40°C - 85°C | -40°C - 85°C |
| Maximum Drive Level | 0.5µW | 0.5µW | 100µW | 10µW - 100µW | 10µW - 100µW | 1.0µW | 1.0µW | 1.0µW | 1.0µW | 1.0µW |
| Frequency Tolerance | ±20ppm @ 25°C | ±20ppm @ 25°C | ±50ppm @ 25°C | ±50ppm @ 25°C | ±50ppm @ 25°C | ±20ppm @ 25°C | ±20ppm @ 25°C | ±20ppm @ 25°C | ±20ppm @ 25°C | ±20ppm @ 25°C |
| Load Capacitance | 12.5pF | 12.5pF | C: 18pF; G: 20pF | 18pF | 18pF | 9pF | 12.5pF | A=12.5pF; E=6pF | 12.5pF | 12.5pF |
| Series Resistance | 70KΩ Max. | 65KΩ Max. | — | — | — | 65KΩ Max. | 65KΩ Max. | 50KΩ Max. | 50KΩ Max. | 50KΩ Max. |
| Shunt Capacitance | 1.3pF Typ. | 1.3pF Typ. | 5pF Max. | 5pF Max. | 5pF Max. | 0.8pF | — | 0.9pF Max. | 0.85pF Typ. | 0.85pF |



| Frequency | Digi-Key Part No. | Cut Tape Price Each | | Tape and Reel† | | Epson Part No. |
|------------------------|-------------------|---------------------|------|----------------|---------|--------------------------------------|
| | | 1 | 50 | Qty. | Pricing | |
| Fig. 1 — MA-505 | | | | | | |
| 4.00000 MHz | SE2518CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-505 4.0000M-CO |
| 4.00000 MHz | SER2518CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-505 4.0000M-CO:ROHS |
| 4.09600 MHz | SE2519CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-505 4.0960M-CO |
| 4.09600 MHz | SER2519CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-505 4.0960M-CO:ROHS |
| 4.91520 MHz | SE2520CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-505 4.9152M-CO |
| 4.91520 MHz | SER2520CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-505 4.9152M-CO:ROHS |
| 6.00000 MHz | SE2501CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 6.0000M-CO |
| 6.00000 MHz | SER2501CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 6.0000M-CO:ROHS |
| 7.37280 MHz | SE2503CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 7.3728M-CO |
| 7.37280 MHz | SER2503CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 7.3728M-CO:ROHS |
| 8.00000 MHz | SE2504CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 8.0000M-CO |
| 8.00000 MHz | SER2504CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 8.0000M-CO:ROHS |
| 9.83040 MHz | SE2524CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 9.8304M-CO |
| 9.83040 MHz | SER2524CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 9.8304M-CO:ROHS |
| 10.00000 MHz | SE2505CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 10.0000M-CO |
| 10.00000 MHz | SER2505CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 10.0000M-CO:ROHS |
| 10.24000 MHz | SE2525CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 10.2400M-CO |
| 10.24000 MHz | SER2525CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 10.2400M-CO:ROHS |
| 11.05920 MHz | SE2506CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 11.0592M-CO |
| 11.05920 MHz | SER2506CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 11.0592M-CO:ROHS |
| 12.00000 MHz | SE2507CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 12.0000M-CO |
| 12.00000 MHz | SER2507CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 12.0000M-CO:ROHS |
| 14.31800 MHz | SE2528CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 14.3180M-CO |
| 14.31800 MHz | SER2528CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 14.3180M-CO:ROHS |
| 14.74560 MHz | SE2529CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 14.7456M-CO |
| 14.74560 MHz | SER2529CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 14.7456M-CO:ROHS |
| 16.00000 MHz | SE2508CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 16.0000M-CO |
| 16.00000 MHz | SER2508CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 16.0000M-CO:ROHS |
| 18.43200 MHz | SE2533CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 18.4320M-CO |
| 18.43200 MHz | SER2533CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 18.4320M-CO:ROHS |
| 19.66000 MHz | SE2535CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 19.6600M-CO |
| 19.66000 MHz | SER2535CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 19.6600M-CO:ROHS |
| 20.00000 MHz | SE2509CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 20.0000M-CO |
| 20.00000 MHz | SER2509CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 20.0000M-CO:ROHS |
| 24.00000 MHz | SE2510CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 24.0000M-CO |
| 24.00000 MHz | SER2510CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 24.0000M-CO:ROHS |
| 24.57600 MHz | SE2538CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 24.5760M-CO |
| 24.57600 MHz | SER2538CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 24.5760M-CO:ROHS |
| 25.00000 MHz | SE2539CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 25.0000M-CO |
| 25.00000 MHz | SER2539CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 25.0000M-CO:ROHS |
| 29.49120 MHz | SE2543CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 29.4912M-CO:(30T) |
| 29.49120 MHz | SER2543CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 29.4912M-CO:(30T):ROHS |
| 30.00000 MHz | SE2544CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 30.0000M-CO |
| 30.00000 MHz | SER2544CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 30.0000M-CO:ROHS |
| 32.76800 MHz | SE2546CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 32.7680M-CO |
| 32.76800 MHz | SER2546CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 32.7680M-CO:ROHS |
| 36.00000 MHz | SE2548CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 36.0000M-CO |
| 40.00000 MHz | SE2515CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 40.0000M-CO |
| 40.00000 MHz | SER2515CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-505 40.0000M-CO:ROHS |
| Fig. 1 — MA-506 | | | | | | |
| 4.00000 MHz | SE2618CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-506 4.0000M-CO |
| 4.00000 MHz | SER2618CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-506 4.0000M-CO:ROHS |
| 4.09600 MHz | SE2619CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-506 4.0960M-CO |
| 4.09600 MHz | SER2619CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-506 4.0960M-CO:ROHS |
| 4.91520 MHz | SE2620CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-506 4.9152M-CO |
| 4.91520 MHz | SER2620CT-ND | 2.24 | 1.93 | 1,611 | 1,000 | 896.90 MA-506 4.9152M-CO:ROHS |
| 6.00000 MHz | SE2601CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-506 6.0000M-CO |
| 6.00000 MHz | SER2601CT-ND | .90 | .77 | .65 | 1,000 | 358.76 MA-506 6.0000M-CO:ROHS |

| Frequency | Digi-Key Part No. | Cut Tape Price Each | | Tape and Reel† | | Epson Part No. |
|------------------------|-------------------|---------------------|-----|----------------|---------|---------------------------------|
| | | 1 | 50 | Qty. | Pricing | |
| Fig. 2 — MC-146 | | | | | | |
| 32.76800 KHz | SE2416CT-ND | 1.12 | .97 | .81 | 250 | 160.16 MC-146 32.768KA-AC3 |
| 32.76800 KHz | SER2416CT-ND | 1.12 | .97 | .81 | 250 | 160.16 MC-146 32.768KA-AC3:ROHS |

† For Tape and Reel part number change CT-ND to TR-ND. ♦ RoHS Compliant (Continued)

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

Free shipping on orders over €65! All prices in euro and include duties. (EU2011-EN) 1447