

# Product Specification

DVD+R/RW Drive

Model : DW-7801TE

Revision 1.0

## 1. GENERAL

1-1 OUTER DIMENSION (W x H x D) : 148.2 x 42 x 198

1-2 WEIGHT : 1.06Kg

### 1-3 POWER REQUIREMENTS

+5V VOLTAGE TOLERANCE	+/- 5%
+5V RIPPLE AND NOISE TOLERANCE	< 120 mV
+12V VOLTAGE TOLERANCE	+/- 10%
+12V RIPPLE AND NOISE TOLERANCE	< 120mV

### 1-4 POWER CONSUMPTION

	Condition	Max	Average	Unit
+5V Current	Spinup	800	480	mA
	Seek(CD 17-40x CAV)	1,100	530	mA
	Read (CD 17-40x CAV)	900	480	mA
	Write (CD 16x CLV)	1,000	700	mA
	Write (DVD+R 4x CLV)	800	530	mA
	Tray Open Close	650	380	mA
	Idle (CD 4-10x CAV Pause)	530	450	mA
+12V Current	Sleep	80	55	mA
	Spinup	1,400	1,150	mA
	Seek(CD 17-40x CAV)	1,200	800	mA
	Read (CD 17-40x CAV)	800	700	mA
	Write (CD 16x CLV)	500	430	mA
	Write (DVD+R 4x CLV)	600	500	mA
	Tray Open Close	650	330	mA
	Idle (CD 4-10x CAV Pause)	520	260	mA
	Sleep	170	130	mA

Note:

The maximum peak current does not include the current below 100 msec.

## 2. MAIN CHARACTERISTICS

### 2-1 DVD MODES AND BLOCK LENGTH SUPPORTED

#### 2-1-1 CD READABLE FORMAT, MODES AND BLOCK LENGTH SUPPORTED

Format and Modes Supported	DVD-Video(8cm/12cm, Single and Dual Layer), DVD-ROM(8cm/12cm, Single and Dual Layer), Multi-Boader, Multi-Session
Block Length Supported	2048 bytes/sector

#### 2-1-2 DVD WRITABLE FORMAT, MODES AND BLOCK LENGTH SUPPORTED

Format and Modes Supported	DVD-Video, DVD-ROM, Multi-Session
Block Length Supported	2048 bytes/sector

#### 2-1-3 DVD WRITE METHOD SUPPORTED

Uninterrupted Write	Disc at once
Interrupted Write	Random write, Sequential write

## 2-1-4 DVD WRITABLE MEDIA

DVD+R Media (4x/2.4x)	RICHO, Mitsubishi, TDK, Fuji Film, Verbatim
DVD+RW Media (2.4x)	RICHO, Mitsubishi, TDK, Fuji Film, Verbatim
DVD+RW Rewrite	1000 times

## 2-2 CD MODES AND BLOCK LENGTH SUPPORTED

### 2-2-1 CD READABLE FORMAT, MODES AND BLOCK LENGTH SUPPORTED

Format and Modes Supported	CD-Audio(8cm/12cm), CD-ROM(mode 1 and mode 2), CD-ROM XA(mode 2, form 1 and form 2), Photo CD(single or multiple sessions), CD-I(FMV), Video CD, CD Extra., CD-TEXT
Block Length Supported	CD-Audio 2352 and 2368 Bytes CD-ROM (mode 1) 2048 and 2352 Bytes CD-ROM XA/CD-I form 1 2048, 2328, 2336, 2340 and 2352 Bytes form 2 2328, 2336, 2340 and 2352 Bytes

### 2-2-2 CD WRITABLE FORMAT, MODES AND BLOCK LENGTH SUPPORTED

Format and Modes Supported	CD-Audio(8cm/12cm), CD-ROM(mode 1 and mode 2), CD-ROM XA(mode 2, form 1 and form 2), Photo CD(single or multiple sessions), CD-I(FMV), Video CD, CD Extra., CD-TEXT
Block Length Supported	CD-Audio 2352 Bytes CD-ROM (mode 1) 2048 Bytes CD-ROM XA/CD-I form 1 2048 and 2332 Bytes form 2 2332 Bytes

### 2-2-3 CD WRITE METHOD SUPPORTED

Uninterrupted Write	Disc at once
Interrupted Write	Track at once Session at Once Packet Writing (Fixed size Packets, Variable size Packets)

### 2-2-4 CD WRITABLE MEDIA

CD-R Media (16x/8x/4x)	Mitsubishi, Taiyo-Yuden, Mitsui, Ricoh, Fujifilm, Sony, Hitachi Maxell, Memorex, RITEK, CMC, P.V.C, JVC, SKC, ACER, Prime Disc, TDK
CD-RW Media (10x/4x)	Ricoh, Mitsubishi, ACER, OPTROM, Memorex, P.V.C, RITEK, CMC, LEADDATA, GigaStorage, Prodisc, Fornex, Sumsung, Philips
CD-RW Rewrite	1000 times

## 2-3 TRANSFER RATE

### 2-3-1 READ SPEED AND TRANSFER RATE

DVD-ROM	Single Layer	5-12x CAV	16.6 Mbytes/sec
	Dual Layer	3-7x CAV	4.1-10 Mbytes/sec
DVD-R/-RW/+R/+RW Data track		2-5x CAV	2.7-6.9 Mbytes/sec
DVD-Video with CSS protection		2-5x CAV	2.7-6.9 Mbytes/sec
CD-ROM/CD-R	Mode 1 and Mode 2 Form 1 (2048 Bytes)	17-40x CAV	2550 - 6000 kBytes/sec
CD-RW	Mode 1 and Mode 2 Form 1 (2048 Bytes)	13-32x CAV	1950 - 4800 kBytes/sec
DAE		13-32x CAV	1950 - 4800 kBytes/sec
Mode 2 and Mode 2 Form2		8x CLV or 4-10x CAV	600-1500 kBytes/sec

USER BYTES/SEC. (SUSTAINED)  
(1 KBytes = 1024 Bytes)

### 2-3-2 WRITE SPEED AND TRANSFER RATE

DVD+R		4x CLV	5.5 MBytes/sec
		2.4x CLV	3.3 MBytes/sec
DVD+RW		2.4x CLV	3.3 MBytes/sec
CD-R		16x CLV	2400KBytes/sec
		8x CLV	1200KBytes/sec
		4x CLV	600KBytes/sec
CD-RW		10xCLV	1500KBytes/sec
		4xCLV	600KBytes/sec

## 2-4 Data Transfer Mode

PIO		mode 4
DMA	single word	mode 2
	multi word	mode 2
	ultra DMA33	mode 2

2-5 DATA BUFFER : 2Mbyte

## 3. MECHANICAL and ELECTRICAL SPECIFICATION

### 3-1 ACCESS TIME (INCLUDING LATENCY)

DVD medium	FULL STROKE	230 msec (typical)
	1/3 STROKE	140 ms (Typical)
	RANDOM STROKE	140 msec (typical)
CD medium	FULL STROKE	200 msec (typical)
	1/3 STROKE	120 msec (typical)
	RANDOM STROKE	120 msec (typical)

### 3-2 USER ERROR RATES

Hard Error Rate	DVD and CD Mode 1 (with up to 5 retries and layered ECC on)	< 10-12 Block/bit
Soft Error Rate	CD Mode 2 (with up to 5 retries)	< 10-9 Block/bit
Seek Error Rate		< 10-6 Block/bit

### 3-3 DVD CONTENT SCRAMBLE SYSTEM AUTHENTICATION

This drive fully complies with the ATAPI DVD Key Exchange and Authentication specification, which is a digital cryptograph.

### 3-4 REGION PLAYBACK CONTROL

This drive supports RPC phase II provided by SFF8090v4 Rev. 1.00.

The user can change the region code, which is stored in the drive up to 5 times by sending the appropriate command.

Usually, the command is issued by MPEG Player application.

### 3-5 PLAYABILITY

CD	Black dot	less than 0.6 mm
	Finger Print	less than 65 um
DVD	Black dot	less than 0.6 mm
	Finger Print	less than 65 um

## 4. ENVIRONMENTAL SPECIFICATION

TEMPERATURE (NON-CONDENSING)	NON-OPERATING			-40°C to +65°C	
	OPERATING			0°C to +45°C	
HUMIDITY (NON-CONDENSING)	NON-OPERATING			20% to 90%	(Maximum wet bulb temp 29°C )
	OPERATING			Max 70%	(Maximum wet bulb temp 29°C)
VIBRATION	OPERATING	CD	Read	0.25G (Zero to peak)	sweep : 5 to 500 Hz (one-way) 0.5oct./minutes Direction of vibration : X,Y and Z axis
			Write	0.15G (Zero to peak)	
		DVD	Read	0.25G (Zero to peak)	
			Write	0.1G (Zero to peak)	
	NON-OPERATING			1G (Zero to peak)	
SHOCK	NON-OPERATING	Pulse Duration: 2ms		160G max	Direction of shock : ±X , ±Y, and ±Z axes (2 directions per axis, so a total of 6shocks)
		Pulse Duration: 11ms		70G max	
	OPERATING	CD	Read	6G	1/2 sine wave shape Pulse Duration : 11 msec Direction of shock : ±X , ±Y, and ±Z axes (2 directions per axis, so a total of 6shocks)
			Write	1.5G	
		DVD	Read	6G	
			Write	1 G	
PACKAGED DROP				92cm	6 surfaces / 1 corners / 3 edges Bulk Carton (10 sets)
ELECTROSTATIC DISCHARGE	Contact discharge			8kV	Energy storage capacitance : 150pF ±10% Discharge resistance : 330Ω ± 10%
	Air discharge			15kV	

## 5. QUALITY AND RELIABILITY

TRAY LOADING	30,000	cycles	
MTBF	70,000	POH	operated at 25°C temperature, nominal voltage, and other environmental limits The operating duty cycle is 10% of power on time. During this time, the drive is either reading or seeking (random multiple block read)

## 6. MOUNTING ORIENTATION

Horizontal	front side up or down $\pm 10^\circ$
	left side up or down $\pm 5^\circ$
Vertical	front side up or down $\pm 5^\circ$
	top side up or down $\pm 2.5^\circ$

## 7. OUTPUT SIGNAL CHARACTERISTICS

AUDIO LINE OUTPUT	0.75 V (rms) $\pm 3.0$ dB	10 k $\Omega$ load at 1 kHz : 0 dB
DISTORTION	<0.10%	(measured under laboratory condition)
S/N RATIO	75 dB	(measured under laboratory condition)
FREQUENCY RESPONSE	+3.0 dB, -3.0 dB	20 Hz – 20 kHz
HEADPHONE OUTPUT	0.7 V (rms) $\pm 3.0$ dB	100 $\Omega$ load at 1 kHz: 0 dB

