

ASSP 1 CHANNEL 8-BIT VIDEO A/D CONVERTER MB40558

1 CHANNEL 8-BIT VIDEO A/D CONVERTER (40MSPS)

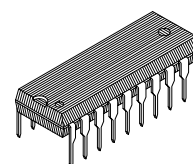
The Fujitsu MB40558 is a low power ultra-high speed video A/D converter fabricated with Fujitsu Advanced Bipolar Technology. The MB40558 also adopts the fully-parallel comparison technique (flash method) for high speed conversion and can convert wide band analog signal such as video signal to digital signal at sampling rate of DC through 40 Mega-samples/sec. Because of such high speed operation, the MB40558 is suitable for digital video applications such as the digital TV, video processing with computer, or ladder signal processing.

- Resolution : 8 bits
- Linearity Error : $\pm 0.15\%$
- Maximum Conversion Rate : 40 MSPS (min)
- Digital I/O Level : TTL Compatible
- Analog Input Voltage : 3.0V to 5.0V (2Vp-p)
- Single Power Supply : 5.0V
- Power dissipation : 350mW (typ)
- Further Function : On Chip Reference Voltage Generator
- Package : Standard 20-pin Plastic DIP Package : Suffix : -P
Standard 20-pin Plastic Flat Package : Suffix : -PF

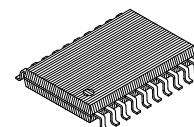
ABSOLUTE MAXIMUM RATINGS (See NOTE)

Parameter	Symbol	Value	Unit
Power Supply Voltage	V _{CC}	-0.5 to +7.0	V
Digital Input Voltage	V _{IND}	-0.5 to +7.0	V
Analog Input Voltage	V _{INA}	-0.5 to V _{CC} +0.5	V
Storage Temperature	T _{STG}	-55 to +150	°C

NOTE: Permanent device damage may occur if the above **Absolute Maximum Ratings** are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

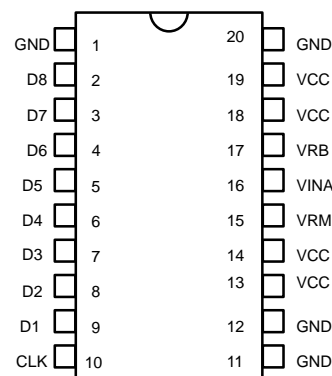


**PLASTIC PACKAGE
DIP-20P-M01**



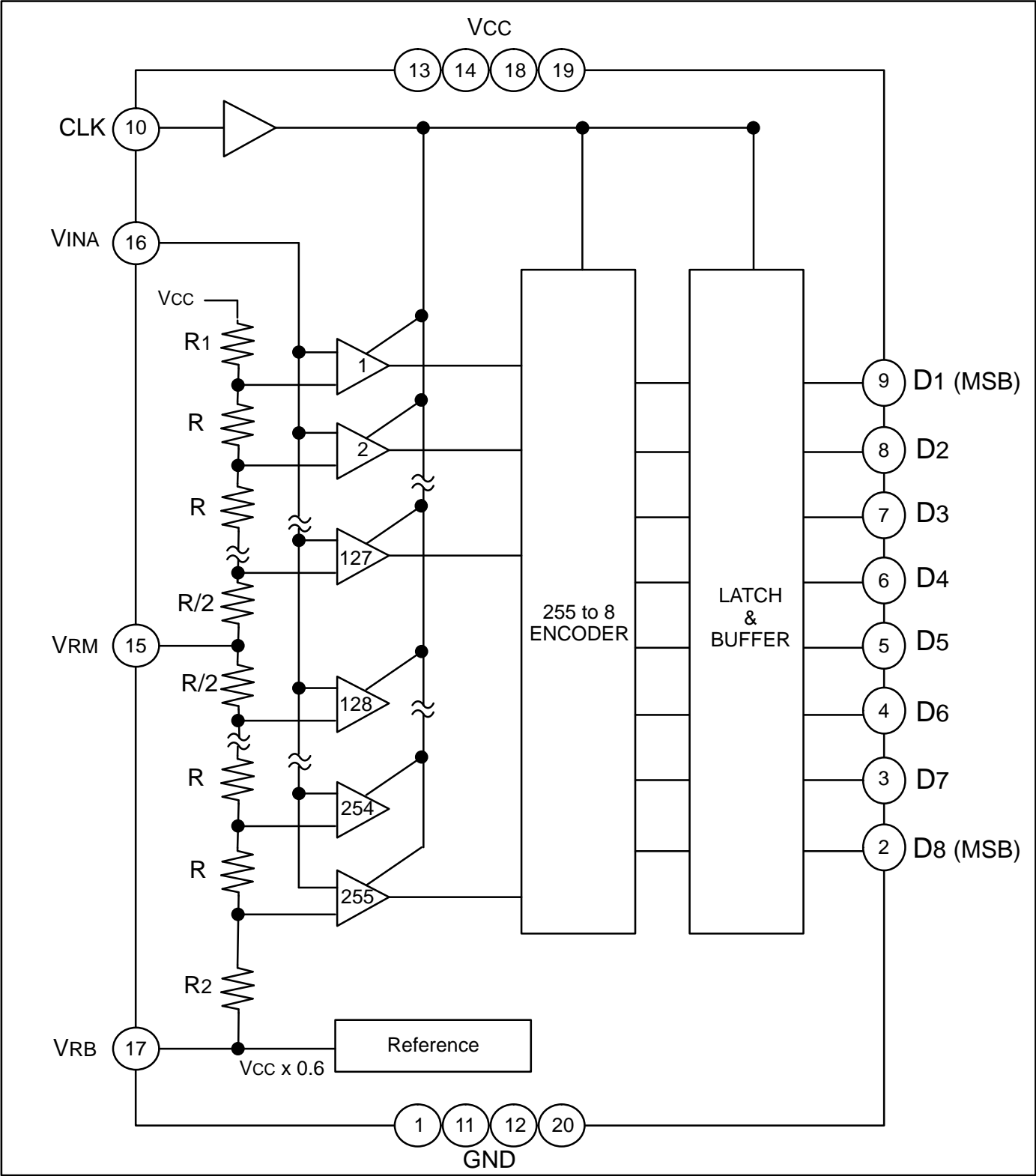
**PLASTIC PACKAGE
FPT-20P-M02**

PIN ASSIGNMENT



(Top View)

BLOCK DIAGRAM



RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Power Supply Voltage	V _{CC}	4.75	5.00	5.25	V
Analog Input Voltage	V _{INA}	V _{RB}	–	V _{CC}	V
Digital High–Level Output Current	I _{OH}	–400	–	–	μA
Digital Low–Level Output Current	I _{OL}	–	–	1.6	mA
Clock Pulse Width at High–Level	t _{w+}	11.5	–	–	ns
Clock Pulse Width at Low–Level	t _{w–}	11.5	–	–	ns
Operating Temperature	T _a	–20	–	70	°C

ELECTRICAL CHARACTERISTICS

ANALOG DC CHARACTERISTICS

($V_{CC}=5\text{ V}\pm 5\%$, $GND=0\text{ V}$, $T_a=-20\text{ to }+70\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Resolution		–	8	–	bits
Linearity Error	LE	–	± 0.15	± 0.3	%
Differential Linearity Error	DLE	–	± 0.12	–	%
Equivalent Resistance for Analog Input	R _{INA}	0.18	2.8	–	M Ω
Analog Input Capacitance	C _{INA}	–	40	–	pF
Analog High-Level Input Current	I _{IHA}	–	–	195	μA
Analog Low-Level Input Current	I _{ILA}	–	–	185	μA
Reference Voltage	V _{RB}	$0.6 \times V_{CC} - 0.1$	$0.6 \times V_{CC}$	$0.6 \times V_{CC} + 0.1$	V
Power Supply Current	I _{CC}	–	70*	130	mA

* : $V_{CC}=5.0\text{ V}$, $T_a=+25^{\circ}\text{C}$

DIGITAL DC CHARACTERISTICS

($V_{CC}=5\text{ V}\pm 5\%$, $GND=0\text{ V}$, $T_a=-20\text{ to }+70\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
High-Level Output Voltage	V _{OHD}	2.7	–	–	V
Low-Level Output Voltage	V _{OLD}	–	–	0.4	V
High-Level Input Voltage	V _{IHD}	2.0	–	–	V
Low-Level Input Voltage	V _{ILD}	–	–	0.8	V
High-Level Input Current	I _{IHD}	–	–	20	μA
Low-Level Input Current	I _{ILD}	–100	–	–	μA

ELECTRICAL CHARACTERISTICS (Continued)

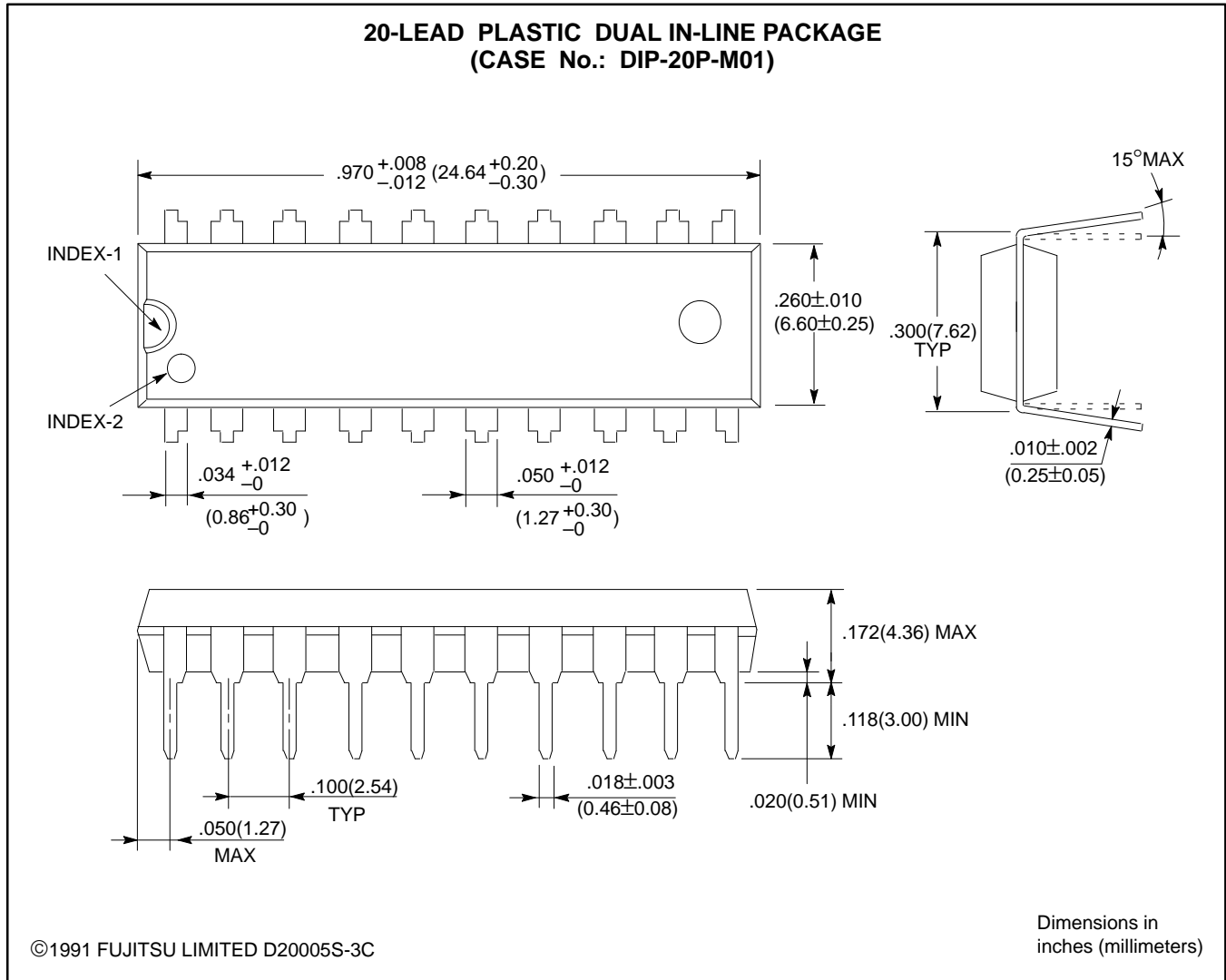
SWITCHING CHARACTERISTICS

($V_{CC}=5\text{ V}\pm 5\%$ $GND=0\text{ V}$, $T_a=-20\text{ to }+70\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Maximum Conversion Rate	f_s	40	—	—	MSPS
Digital Output Delay Time	t_{pd}	6	11	21	ns

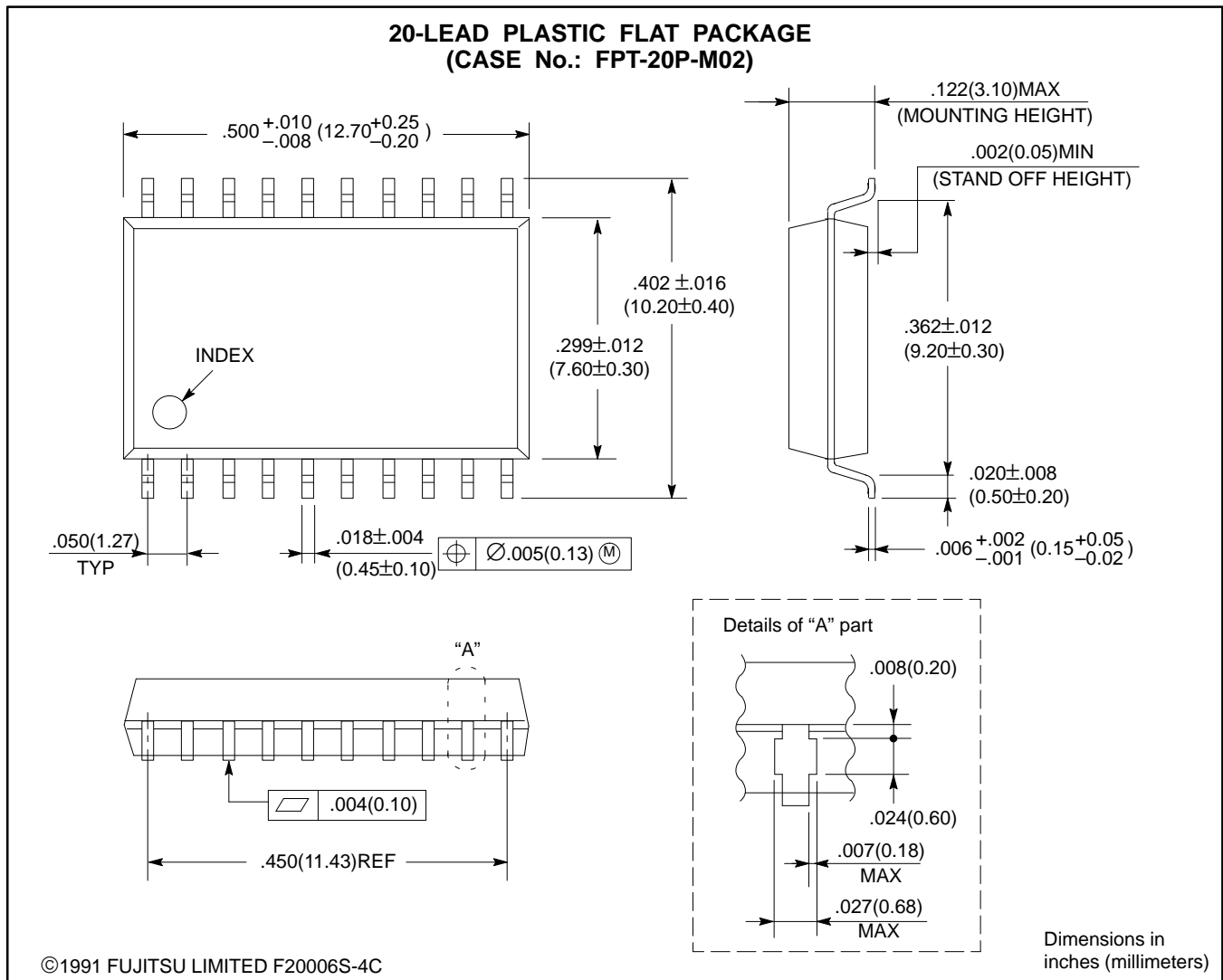
PACKAGE DIMENSIONS

PLASTIC DIP (Suffix : -P)



PACKAGE DIMENSIONS (Continued)

PLASTIC SOP (Suffix : -PF)



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