

FUNCTIONAL DESCRIPTION

Power-on Reset

At power-on, the TS2005F performs a initialization and self-test, then transmits the Device ID code "[TS]" (hex 5B 54 53 5D). Power-on initialization and self-test takes 50 – 55 ms. After reset, the TS2005F is set to stream mode.

Modes of Operation

- **Stream**

In this mode, a data report is transmitted to the host if touch screen is touched.

- **Remote**

In this mode, the TS2005F is stop to report data, and waiting for communication from the host

Data format

The TS2005F used the following format for report data packets.

Data Sequence	Bit 7	Bit 6	Bit 5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte 1	(1)	(0)	TS	(0)	(0)	(0)	(0)	(0)
Byte 2	(0)	(0)	(0)	(0)	X9	X8	X7	X6
Byte 3	(0)	(0)	X5	X4	X3	X2	X1	X0
Byte 4	(0)	(0)	(0)	(0)	Y9	Y8	Y7	Y6
Byte 5	(0)	(0)	Y5	Y4	Y3	Y2	Y1	Y0

Symbol	Description
TS	Touch Status: 1=Touch screen is being touched (a touchdown or continued touch) 0=Touch screen is not being touched (a touch liftoff or inactivated)
X9 – X0	X Data, X9=MSB, X0=LSB (X = Byte2 * 64 + Byte3)
Y9 – Y0	Y Data, Y9=MSB, Y0=LSB (Y = Byte4 * 64 + Byte5)
(0)	Reserved always=0
(1)	Reserved always=1

Communication Parameters

The operation of the TS2005F is 1 start bit, 9600 BPS baud rate, no parity, 8 data bits, and 1 stop bit.

To Detect the Controller

1. Start Remote Mode

The host first forces PC_RTS pin to High to set the TS2005F to remote mode.

2. Waiting for the Controller to Change Mode

The host must wait at least 55 ms for the TS2005F set to remote mode.

3. Exit Remote Mode

The host forces PC_RTS pin to Low to set the TS2005F to exit remote mode and go back to stream mode.

4. Receiving Device ID from the Controller

The TS2005F will response Device ID within 5 ms after exit remote mode.

Communication to the Controller

1. Start Remote Mode

The host first forces PC_RTS pin to High to set the TS2005F to remote mode.

2. Waiting for the Controller to Change Mode

Before sending command to the TS2005F, the host must wait at least 55 ms.

3. Sending Commands to the Controller

The host transmits command to the TS2005F.

After command is transmitted, the host must ready to receive response as soon as possible.

4. Receiving Responses from the Controller

After executing a command, the TS2005F returns a response to the host.

5. Exit Remote Mode

The host forces PC_RTS pin to Low to set the TS2005F to exit remote mode and go back to stream mode.

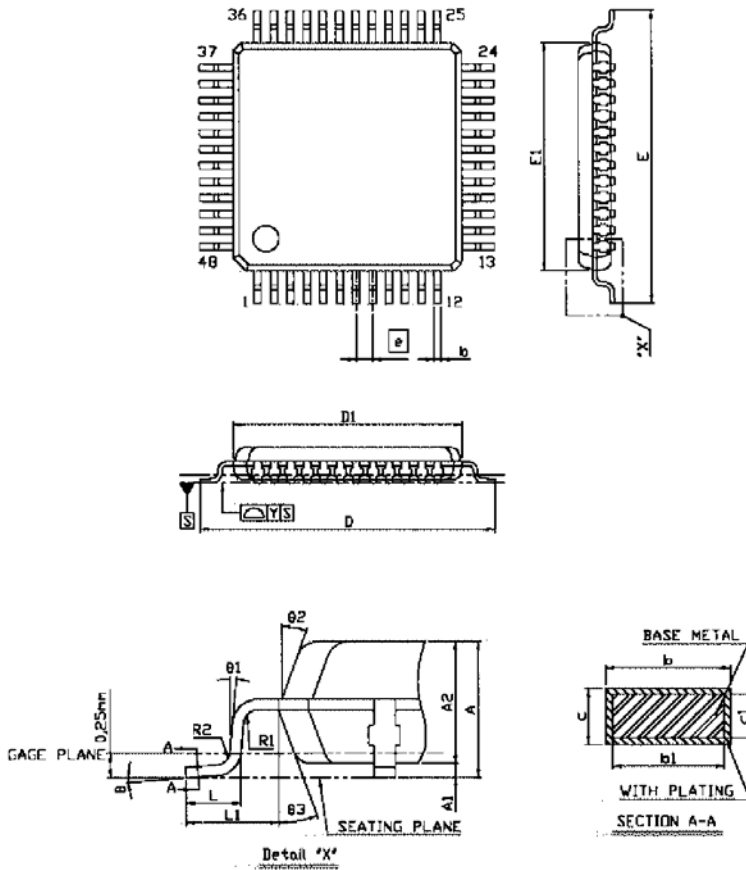
Command Set

The following describe valid commands:

Hex Code	Command	Description
A1	Ask MCU Model	This command always receives a response of hex 5F.
A2	Ask MCU Version	Return the version of firmware in a BCD byte. (Example: hex 90 = Version 9.0)

PACKAGE SIZE

48-Lead Plastic Low Profile Quad Flat Package (LQFP)
LQFP 48 (7x7mm)



SYMBOL	DIMENSION (MM)			DIMENSION (MIL)		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A			2.0			63
A1	0.05	0.13	0.21	2		6
A2	1.35	1.75	1.85	53	55	57
b	0.17		0.38	7	9	11
b 1	0.17	0.30	0.33	7	8	12
c	0.09		0.25	4		8
c 1	0.09	0.15	0.21	4		6
D	9.00 BSC			354 BSC		
D1	7.00 BSC			276 BSC		
E	7.00 BSC			354 BSC		
E1	7.00 BSC			276 BSC		
ϕ	0.50 BSC			26 BSC		
L	0.45	0.60	0.75	18	24	30
L1	1.00 REF			39 REF		
R1	0.08			3		
R2	0.08		0.20	3		8
Y			0.075			3
Θ	0°	3.5°	7°	0°	3.5°	7°
Θ 1	0°			0°		
Θ 2	11°	12°	13°	11°	12°	13°
Θ 3	11°	12°	13°	11°	12°	13°

NOTE:

1. REFER TO JEDEC MS-026/BBC
2. DIMENSION "D1" AND "E1" DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PER SIDE. "D1" AND "E1" ARE MAXIMUM PLASTIC BODY SIZE DIMENSION INCLUDING MOLD MISMATCH.
3. DIMENSION "b" DOES NOT INCLUDE DAMBER PROTRUSION. ALLOWABLE DAMBER PROTRUSION SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED THE MAXIMUM "b" DIMENSION BY MORE 0.08mm.
4. ALL DIMENSIONS IN MILLIMETERS.