



LCD Controller Manual

MCT6448K Version 3.05



3 48-6

110002

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1. MCT6448K ,

2. MCT6448K Connector

3.

4. MCT6448K Image Overwrite

[1.] MCT6448K

Special Font

1. MCT6448K

◆ MCT6448K

- ◆ LCD Resolution : 8bit(256) Color TFT 640*480 dots
16bit Color TFT 640*480 dots

- ◆ :
KS5601

- ◆ LCD Back Light 가

- ◆ LCD Back Light : Inverter _On/Off 가

- ◆ Font : 16*16 dots
16*16 dots
8*16 dots
8*16 dots
16*16

- ◆ Image File Memory

8bit(256) Color/640*480 => 47 [Page] .

16bit Color/640*480 => 23 [Page] .

Font / , ,

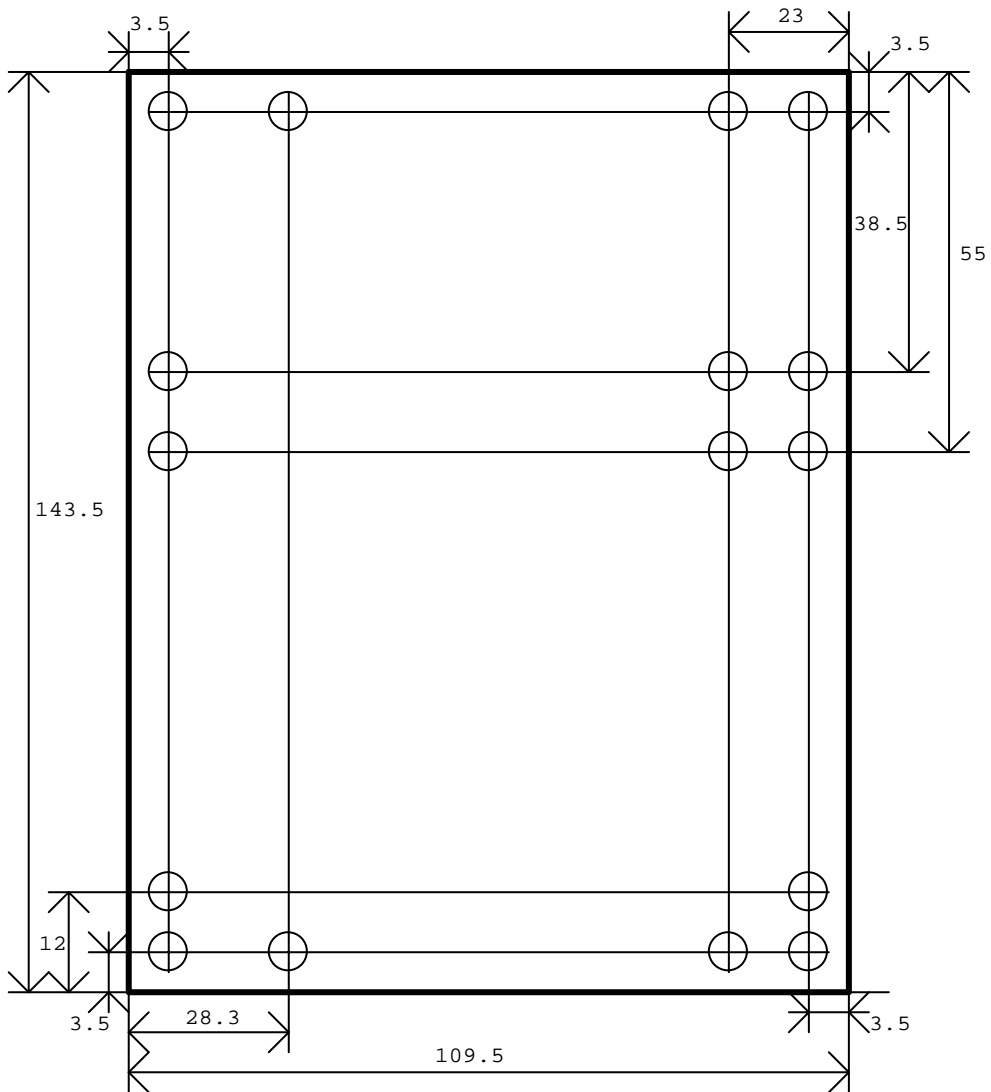
◆ MCT6448K

- ◆ CPU : ARM920T 200[MHz]
- ◆ Display Type : 256 Color/16Bit Color TFT 640*480 dots
- ◆ : +5[VDC]
- ◆ : 1.5[A]
- ◆ LCD Backlight Inverter
- ◆ : RS-232C => 9600, 19200, 57600, 115200 [bps]
8 Bit Parallel

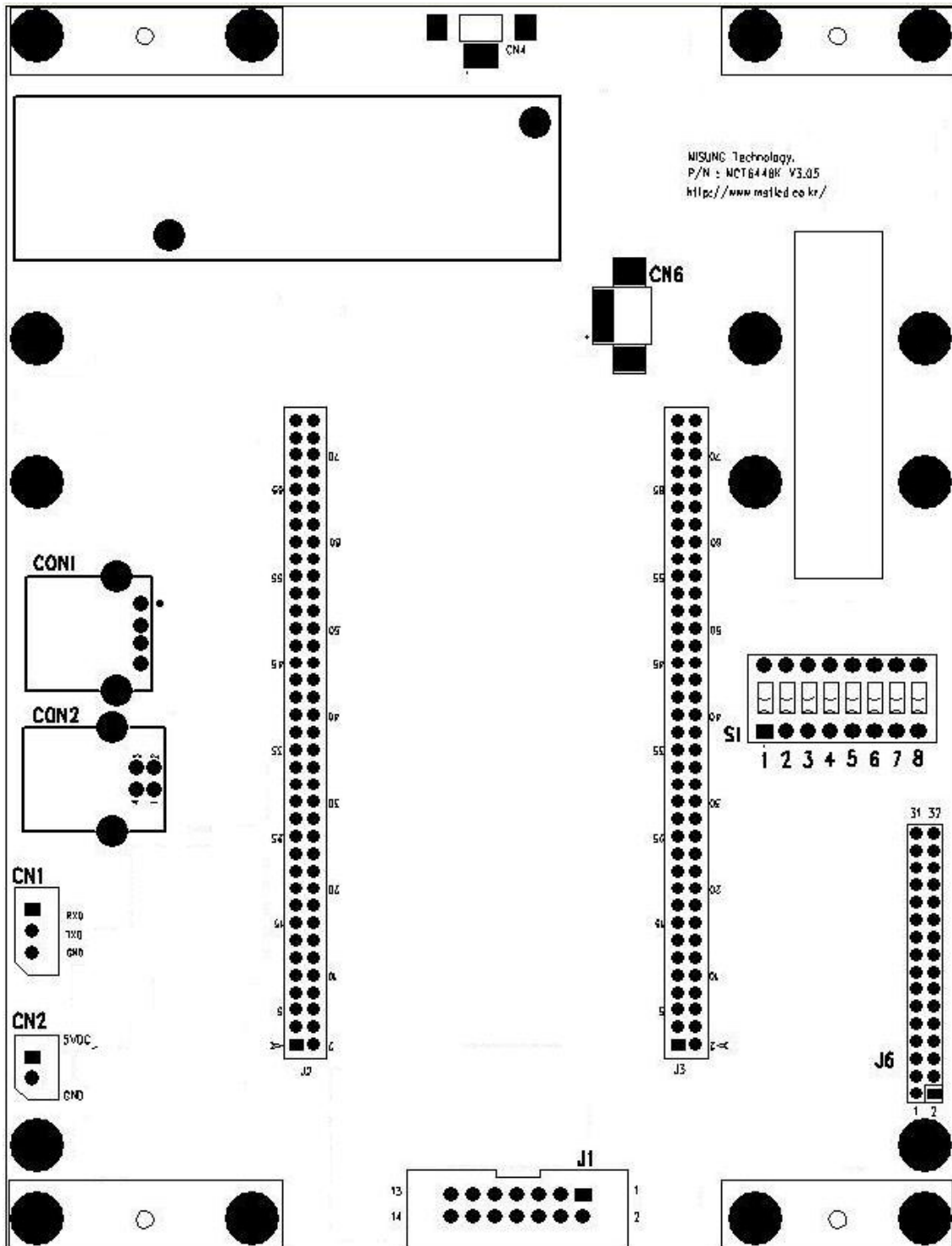
2. MCT6448K Connector

2 MCT6448K Dimensions Connector

MCT6448K Dimensions



LCD Controller Connector



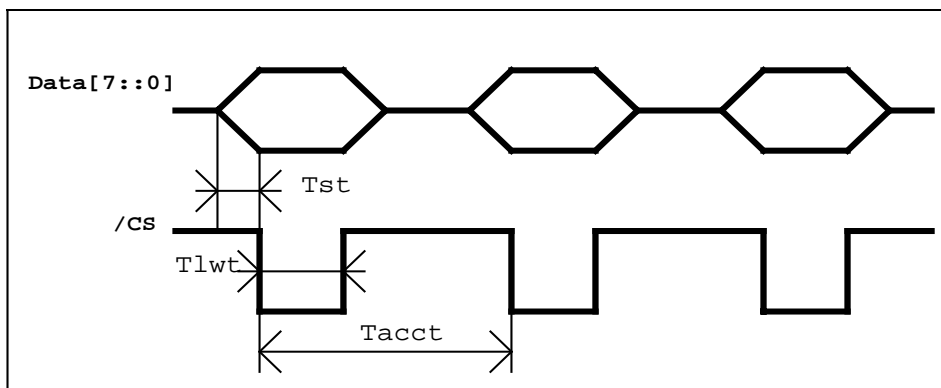
2-1. LCD Module Interface Connector : J6

Pin Number	Symbol	Description
1	VCC33	+3.3[VDC]
2	VCC33	+3.3[VDC]
3	GND	DC Groud
4	DCLK	Data Input Clock
5	DEN	Data Enable Signal
6	GND	DC Groud
7	B0	Brue 0
8	B1	Brue 1
9	B2	Brue 2
10	B3	Brue 3
11	B4	Brue 4
12	B5	Brue 5
13	GND	DC Groud
14	GND	DC Groud
15	G0	Green 0
16	G1	Green 1
17	G2	Green 2
18	G3	Green 3
19	G4	Green 4
20	G5	Green 5
21	GND	DC Groud
22	GND	DC Groud
23	R0	Red 0
24	R1	Red 1
25	R2	Red 2
26	R3	Red 3
27	R4	Red 4
28	R5	Red 5
29	GND	DC Groud
30	GND	DC Groud
31	VSYNC	Vertical Sync Signal
32	HSYNC	Horizontal Sync Signal

2-2. Parallel Connector: J1

Pin Number	Symbol	Description
1	BUSY	Busy Output(Active Low)
2	RESERVED	Reserved
3	RESERVED	Reserved
4	RESERVED	Reserved
5	GND	Ground
6	/CS	Chip Select(Falling Edge Active)
7	D7	Data 7
8	D6	Data 6
9	D5	Data 5
10	D4	Data 4
11	D3	Data 3
12	D2	Data 2
13	D1	Data 1
14	D0	Data 0

Parallel Timing



Tst : Setup Time : $1[\mu\text{s}] < Tst$.

Tlwt : Low Width Time : $1[\mu\text{s}] < Tlwt$.

Tacct : Access Time : $100[\mu\text{s}] < Tacct$.

2-3. Backlight Power Connector : CN6

Pin Number	Symbol	Description
1	VCC5	+5[VDC]
2	REF	Vref
3	ON_OFF	On/OFF
4	VCC5	+5[VDC]
5	GND	DC Ground

2-4. RS-232C Connector : CN1

Pin Number	Symbol	Description
1	RXD	Receive Data : LCD Controller
2	TXD	Transmit Data : LCD Controller
3	GND	DC Ground

2-5. Power Connector : CN2

Pin Number	Symbol	Description
1	VCC5	+5[VDC]/1 [A]
2	GND	DC Ground

2-6. USB Device Connector : CON2**2-7. USB Host Connector: CON1 => Reserved****2-8. Touch : CN4****2-9. Switch : S1**

Pin Number	Symbol	Description
1		BaudRate
2		
3		8/16bit color
4		USB download
5		Reserved
6		Logo image display
7		Parallel on/off
8		Touch 0

**** BaudRate : S1 - 1,2 Switch on/off**

S1 - 1	S1 - 2	BaudRate [bps]
ON	ON	9,600
ON	OFF	19,200
OFF	ON	57,600
OFF	OFF	115,200

**** 8/16bit Color : S1 - 3 Switch on/off**

S1 - 3	Symbol	Description
OFF	8Bit(256) Color	8Bit(256) Color
ON	16Bit Color	16Bit Color

**** USB download : S1-4 Switch on/off**

S1-4	Symbol	Description
ON		USB image download
OFF		

**** Logo image display : S1-6 Switch on/off**

S1-6	Symbol	Description
ON		Logo image display
OFF		

**** Parallel interface : S1-7 Switch on/off**

S1-7	Symbol	Description
ON		Parallel interface
OFF		

**** Touch 0 : S1-8 Switch on/off**

S1-8	Symbol	Description
ON		Touch 0
OFF		

3.

'Esc' = 0x1b [hex]

			Parameter	
'Esc'	'K'	'0x01'		
		'0x02'		KS5601
		'0x03'		(default)
		'0x04'		
'Esc'	'E'	'0x01'		
		'0x02'		
		'0x03'		(default)
		'0x04'		
'Esc'	'P'	'0x01'		Reserved
		'0x02'		Reserved
		'0x03'		Reserved
		'0x04'		Reserved
		'0x05'		Reserved
		'0x06'		Reserved
		'0x07'		Font ON
		'0x08'		Font 가 ON
		'0x09'		Font ON
		'0x0a'		Font OFF
		'0x0b'		Reserved
		'0x0c'		Reserved
		'0x0d'		Reserved
		'0x0e'		Reserved
		'0x0f'		Reserved
		'0x10'		Reserved
		'0x11'		Reserved
		'0x12'		Reserved
		'0x13'		Reserved
'0x14'		Font 가 3 , 2		
'0x15'		Font 가 2 , 3		
'0x16'		Font 가 3 , 3		
'Esc'	'D'	'0x01'		clear
		'0x02'	(X1,Y1,X2,Y2)	Text Clear (X1, Y1, X2, Y2 hex X1,X2:0x00 ~ 0x4f, Y1,Y2:0x00 ~ 0x1e)

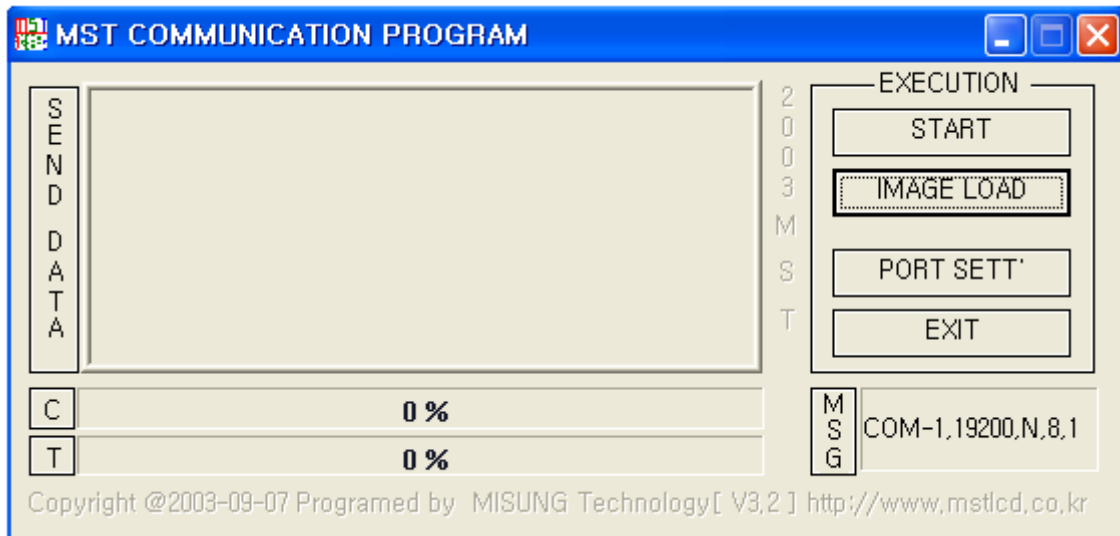
			Parameter	
		'0x03'		Reserved
		'0x04'	(X1,Y1,X2,Y2)	Graphic clear (X1, Y1, X2, Y2 hex X1,X2:0x0000 ~ 0x027f, Y1,Y2:0x0000 ~ 0x01df)
'Esc'	'C'	'0x01'	(X,Y)	Text X,Y cursor (X,Y hex 가 :0x00 ~ 0x4f :0x00 ~ 0x1d)
		'0x02'		Reserved
		'0x03'		Reserved
		'0x04'		Reserved
		'0x05'		Reserved
		'0x06'	(X,Y)	Graphic X,Y cursor (X, Y) X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df
'Esc'	'L'	'0x01'		LCD Back Light OFF
		'0x02'		LCD Back Light ON
'Esc'	'V'	'0x01'		LCD Back Light UP
		'0x02'		LCD Back Light DOWN
'Esc'	'G'	'0x01'	(X,Y)	Graphic _____ X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df
		'0x02'	(X,Y)	Graphic _____ X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df
		'0x03'	(X1,Y1,X2,Y2)	Graphic Line X1,X2:0x0000 ~ 0x027f Y1,Y2:0x0000 ~ 0x01df
		'0x04'	(X1,Y1,X2,Y2)	Graphic Line X1,X2:0x0000 ~ 0x027f Y1,Y2:0x0000 ~ 0x01df
		'0x05'	(X1,Y1,X2,Y2)	Graphic Rectangle X1,X2:0x0000 ~ 0x027f Y1,Y2:0x0000 ~ 0x01df
		'0x06'	(X1,Y1,X2,Y2)	Graphic Rectangle X1,X2:0x0000 ~ 0x027f Y1,Y2:0x0000 ~ 0x01df
		'0x07'	(X1,Y1,X2,Y2)	Graphic Rectangle X1,X2:0x0000 ~ 0x027f Y1,Y2:0x0000 ~ 0x01df
		'0x08'	(X1,Y1,X2,Y2)	Graphic Rectangle X1,X2:0x0000 ~ 0x027f Y1,Y2:0x0000 ~ 0x01df
		'0x09'	(X,Y,radius)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df Radius :0x00 ~ 0xf0
		'0x0a'	(X,Y,radius)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df Radius :0x00 ~ 0xf0
		'0x0b'	(X,Y,radius)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df Radius :0x00 ~ 0xf0
		'0x0c'	(X,Y,radius)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df Radius :0x00 ~ 0xf0

			Parameter	
		'0x0d'	(X,Y,a,b)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df a :640/2 b :480/2
		'0x0e'	(X,Y,a,b)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df a :640/2 b :480/2
		'0x0f'	(X,Y,a,b)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df a :640/2 b :480/2
		'0x10'	(X,Y,a,b)	Graphic _____ X Y X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df a :640/2 b :480/2
'Esc'	'A'	'0x01'		Reset (MCT6448K Rebooting)
		'0x02'		LCD Back Light
		'0x03'		Echo '0x06' Send
		'0x04'		User font display 16Byte Send Image data가 16Byte dummy data 16Byte
		'0x05'	(l)	256 Mode Text color , l:0x00~0xff 16Bit Color mode l:R.G.B [Bytes]. R.G.B =>R:0x00~0xff; G:0x00~0xff; B:0x00~0xff;
		'0x06'	(l)	Text background color , l:0x00~0xff 16Bit Color mode l:R.G.B [Bytes].
		'0x07'		Reserved
		'0x08'	(l)	Text overlay on
		'0x09'	(l)	Text overlay off
		'0x0a'	(l)	Image overlay on
		'0x0b'	(l)	Image overlay off
		'0x0c'	(l)	Image overlay background color setting
'Esc'	'I'	'0x01'	(l)	Image One page draw (l 0x00~0x2f : 256color, 0x00~0x17 :16bit)
		'0x02'		Reserved
		'0x03'		Reserved
		'0x04'	(X,Y)	Image X:0x0000 ~ 0x027f, Y:0x0000 ~ 0x01df -> "0x05" image draw
		'0x05'	(l,J)	I: Page Number, J: Image Number I:0x00 ~ 0x2f, J:0x0000 ~ 0x012c
		'0x06'	(l,X1,Y1,X2,Y2)	I: Page Number, X1,Y1(start point), X2,Y2(end point) 2byte
		'0x07'	(l,X1,Y1,X2,Y2)	I: Page Number, X1,Y1 - image start point X2,Y2 - image size

			Parameter	
'Esc'	'T'	'0x01'		Reserved
		'0x02'		Reserved
		'0x03'		Touch start
		'0x04'		Touch end
		'0x05'		Touch start -> touch panel down -> 320,240 (ASCII 7byte) serial
		'0x06'		Touch panel down -> 320,240 (ASCII 7byte) serial -> touch panel up -> 0xff serial
'Esc'	'Z'	'0x01'		Viewport move left top
		'0x02'		Viewport move right top
		'0x03'		Viewport move right bottom
		'0x04'		Viewport move right bottom

4. MCT6448K Image Overwrite

Image Overwrite Application Program



MCT6448K Image display ,
 Image page Overwrite .

MCT6448K PC Serial Cable

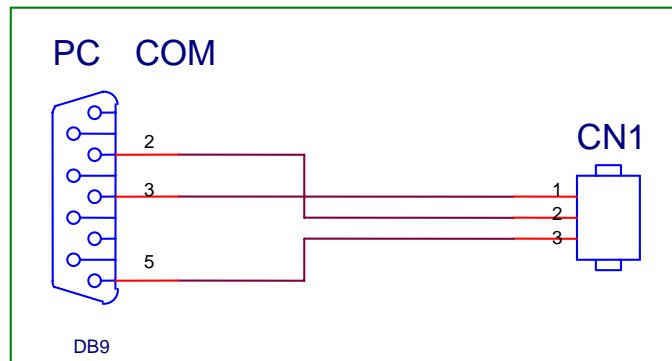
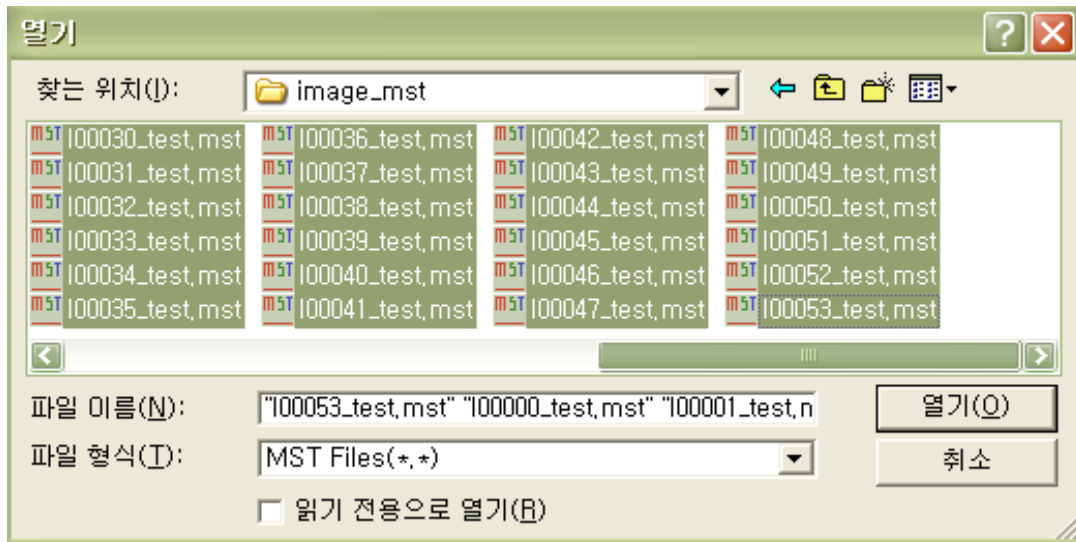
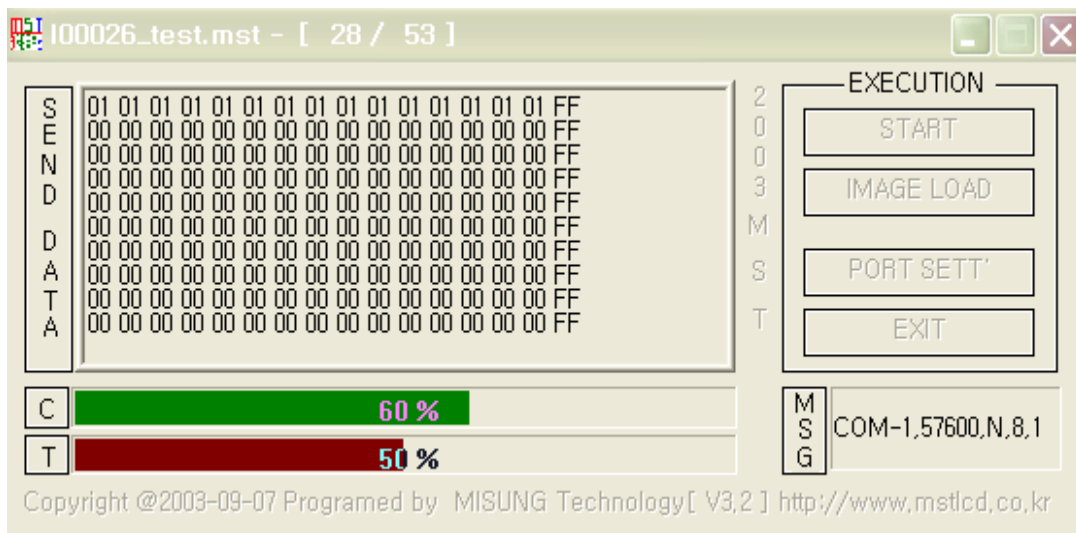


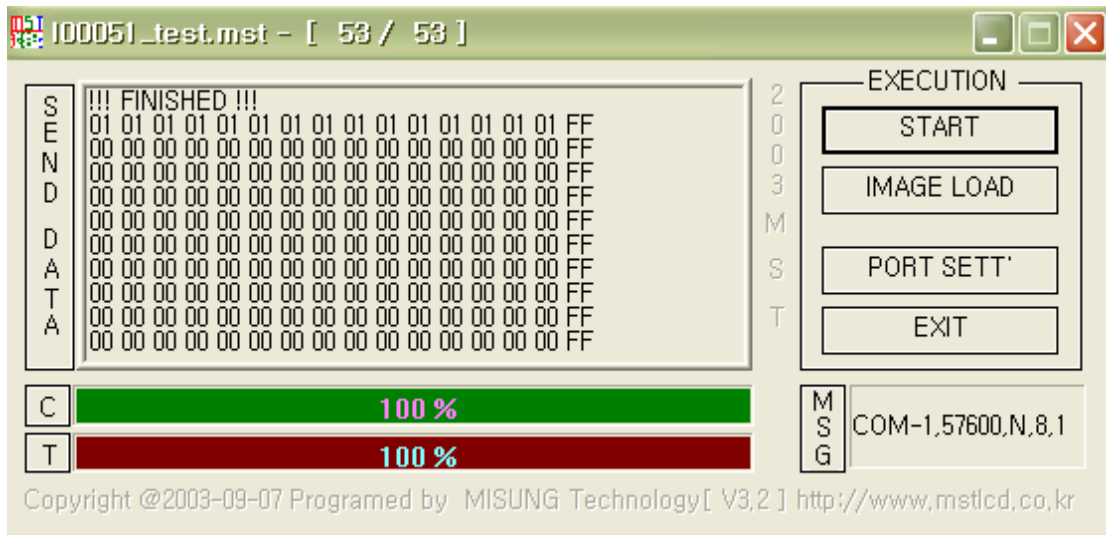
image , 'IMAGE LOAD'



, 'START' MCT6448K Overwrite

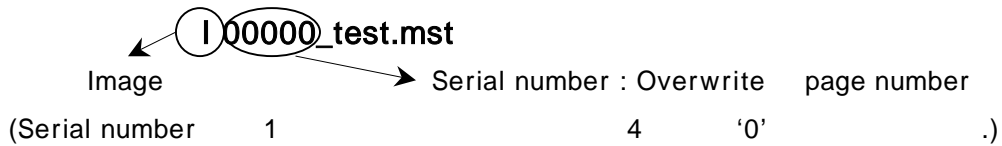


Bar Bar Download
 Bar 가 '100%' Image Overwrite



'IMAGE LOAD'

Image



Ex) 1 page Overwrite file I00001_test.mst

[1.] MCT6448K

Special Font

< 1- 1 > MCT6448K (Special Font)

Special < 1- 1 >

	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F
0x00		☎	☎	☎	☎	☎	☎	☎	No.	Co.	TM.	am.		FM.	Tel.	
0x10	I	II	III	IV	V	VI	VII	VIII	IX	X	ℓℓ	mℓ	dℓ	ℓ	kℓ	cℓ
0x20	mm ³	cm ³	m ³	km ³	fm	nm	μm	mm	cm	km	mm ²	cm ²	m ²	km ²	ha	ℓg
0x30	m _g	k _g	kt	cal	kcal	dB	m _s	m _s ²	ps	ns	μs	ms	pV	nV	μV	mV
0x40	kV	MV	PA	nA	μA	mA	KA	PW	nW	μW	mW	kW	MW	Hz	kHz	MHz
0x50	GHz	THz	Ω	kΩ	MΩ	PF	nF	μF	mol	cd	rad	rad _s	rad _s ²	sr	Pa	kPa
0x60	MPa	GPa	Wb	Im	lx	Bq	Gy	Sv	°/kg	㉿	㊀	㊁	㊂	㊃	㊄	㊅
0x70	㊆	㊇	㊈	㊉	㊊	㊋	㊌	㊍	㊎	㊏	㊑	㊒	㊓	㊔	㊕	㊖
0x80	㊗	㊘	㊙	㊚	㊛	㊜	㊝	㊞	㊟	㊠	㊡	㊢	㊣	㊤	㊥	㊦
0x90	㊧	㊨	㊩	㊪	㊫	㊬	㊭	㊮	㊯	㊰	㊱	㊲	㊳	㊴	㊵	㊶
0xA0	㊷	㊸	㊹	㊺	㊻	㊼	㊽	㊾	㊿	①	②	③	④	⑤	⑥	⑦
0xB0	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓
0xC0	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜	㉝	㉞	㉟	㊀	㊁	㊂	㊃
0xD0	㊄	㊅	㊆	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
0xE0	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(1)	(2)	(3)
0xF0	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)				

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