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Resistive Touch Controller Datasheets

MODEL: **COMBO-R5W-7000C_CHIP**

Customer's No: _____

Customer Approval

Approved by	Checked by	Made by

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Hardware Specification:

Power voltage require	5V(with build-in voltage regulator) 3.3V(without build-in voltage regulator)
Host interface	USB RS232 SMBus SPI
Protocol	USB: Full Speed, Support HID 1.1, Support suspend and remote wakeup RS232: 9600 bps, 8 data bits, none parity, 1 stop bit
Report Resolution	4096 x 4096
Report Rate	USB: max. 200 points/sec RS232: max. 160 points/sec
Response Time	Max. 20ms
Package	28 pin MLP
Power consumption	Normal : 21mA Suspend: 650uA Power down: 80uA
Permanent data storage	Flash for firmware code, calibration data and system parameters. No need external EEPROM, real SoC solution
Operating Temperature	-40℃ to 85℃
Storage Temperature	-65℃ to 150℃

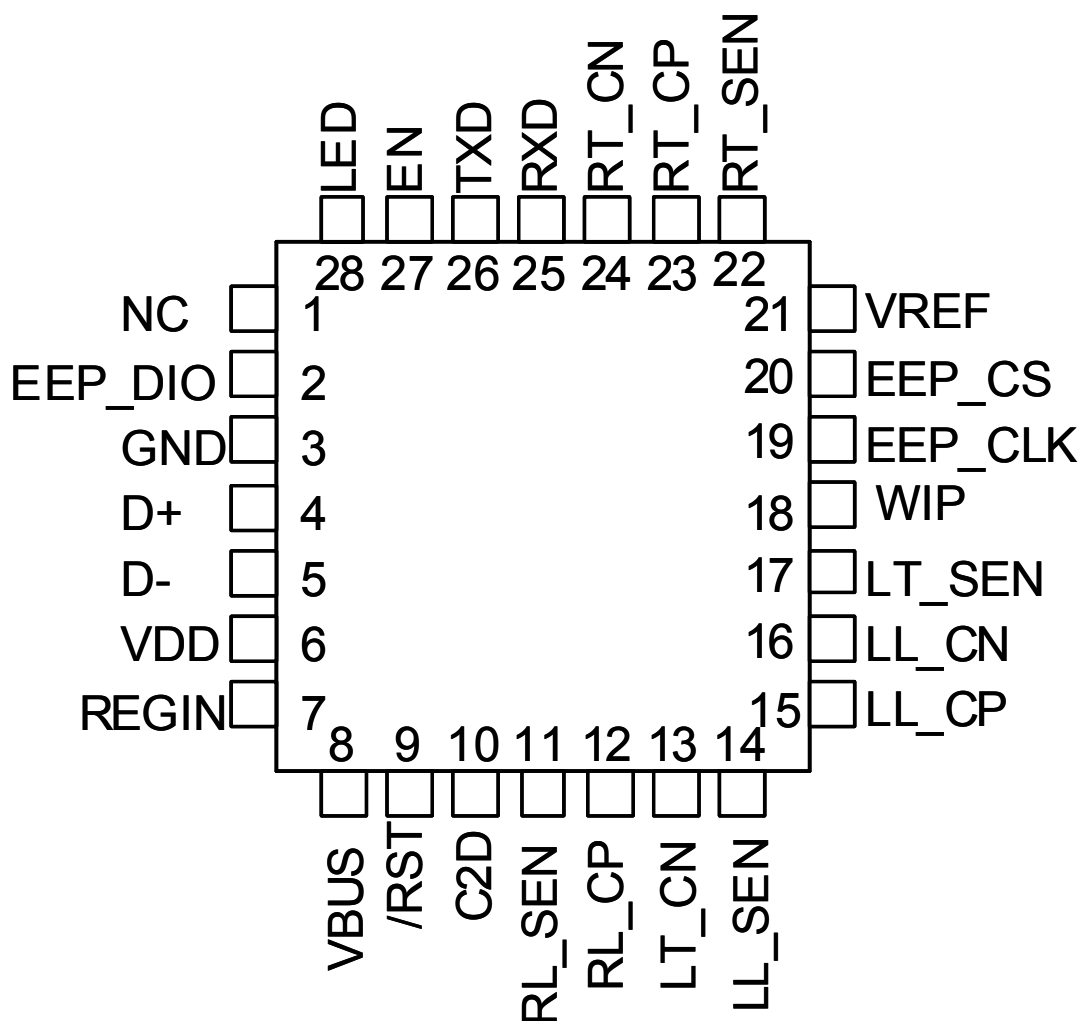
◆ Software Specification:

Calibration	4 points calibration
Linearization	9 and 25 points linearization
OS support	Windows 95/ 98 /ME/ NT/ 2000/ XP/XP Tablet/Vista/Vista64bit Windows CE 4.0/4.2/5.0/6.0 Linux Red Hat 9.0/RHEL 5/Fedora5~8/CentOS 3/5 Debian 4.2/4.3 OpenSuse 10.2/10.3/11.0 Eeepc linux Ubuntu 7.1/8.04 MS-DOS
Languages	Support multiple languages for windows (English, Traditional Chinese, Simplified Chinese, Arabic, French, German, Greek, Hungarian, Korean, Portuguese, Russia, Spanish, Thai, Turkic)
Sound	Support audio sound and beep sound
Software Utility	controller setting utility drawing test auto pin definition detect

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Display support	Support display rotation Support multiple monitors Support split monitor
Right click support	Auto right click 、 manual right click

◆ Pin Configuration:



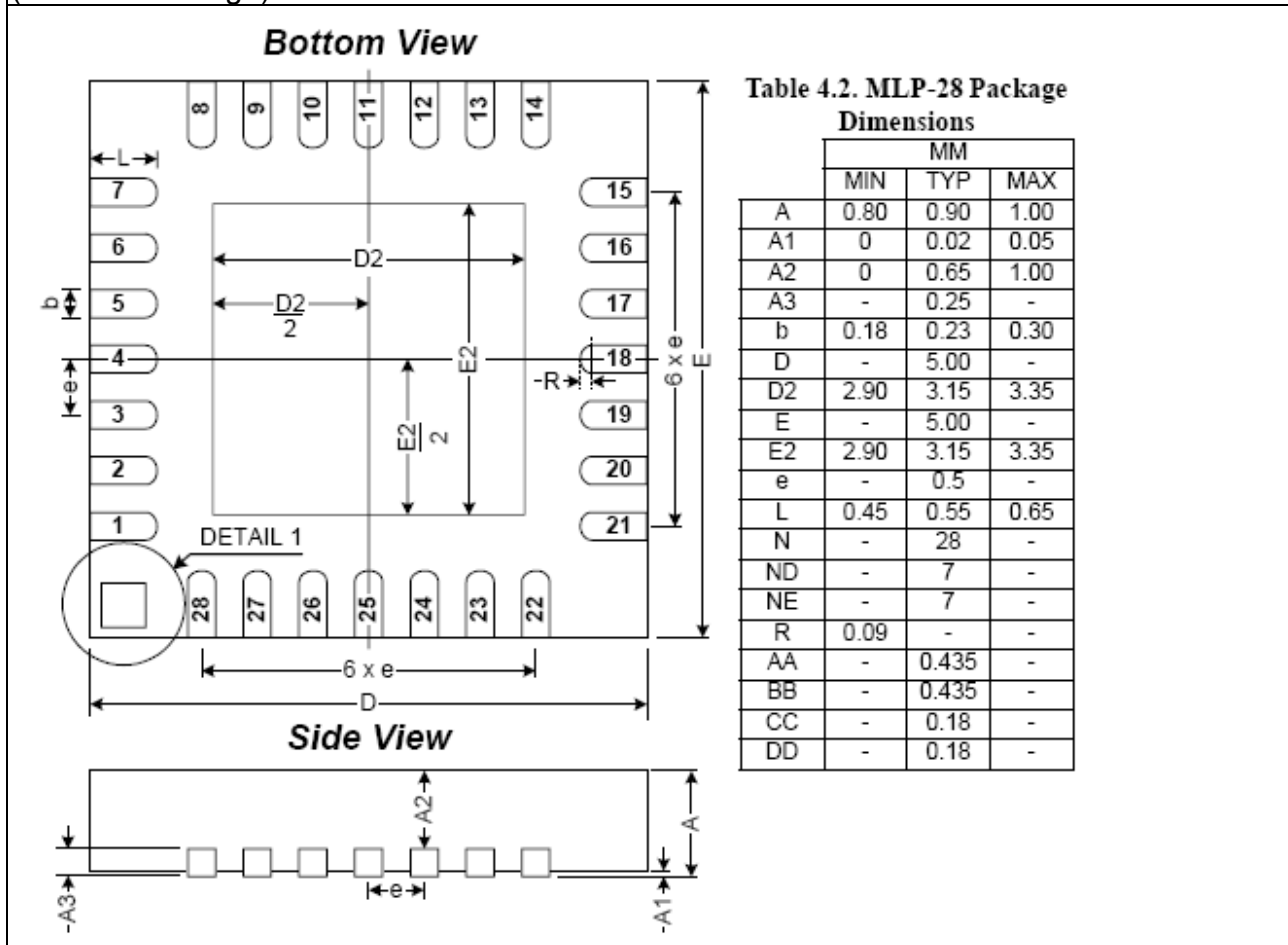
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Pin No	Name	I/O Type	Description
1	NC	N.A	NC
2	EEP_DIO	I/O	EEPROM Digital Input/Output
3	GND	Power	Ground
4	D+	I/O	USB D+
5	D-	I/O	USB D-
6	VDD	Power	3.3V Voltage Regulator output
7	REGIN	Power	5V Regulator input
8	VBUS	Power	USB Bus power input
9	/RST	Input	Device Reset
10	C2D	I/O	Reserved
11	RL_SEN	Analog Input	RL Sense input
12	RL_CP	Output	RL Control(P-Type)
13	LT_CN	Output	LL Control(N-Type)
14	LL_SEN	Analog Input	LL Sense input
15	LL_CP	Output	LL Control(P-Type)
16	LL_CN	Output	LL Control(N-Type)
17	LT_SEN	Analog Input	LT Sense input
18	WIP	Analog Input	WIP Sense input
19	EEP_CLK	Input	EEPROM clock input
20	EEP_CS	Output	EEPROM chip select
21	VREF	Input	Voltage Reference
22	RT_SEN	Analog Input	RT Sense input
23	RT_CP	Output	RT Control(P-Type)
24	RT_CN	Output	RT Control(N-Type)
25	RXD	Input	RS232 RxD
26	TXD	Output	RS232 TxD
27	EN	Input	Enable touch function(Hi: Enable, Lo: Disable) Internal pull-high to default enable touch function
28	LED	Output	Touch Indicated LED

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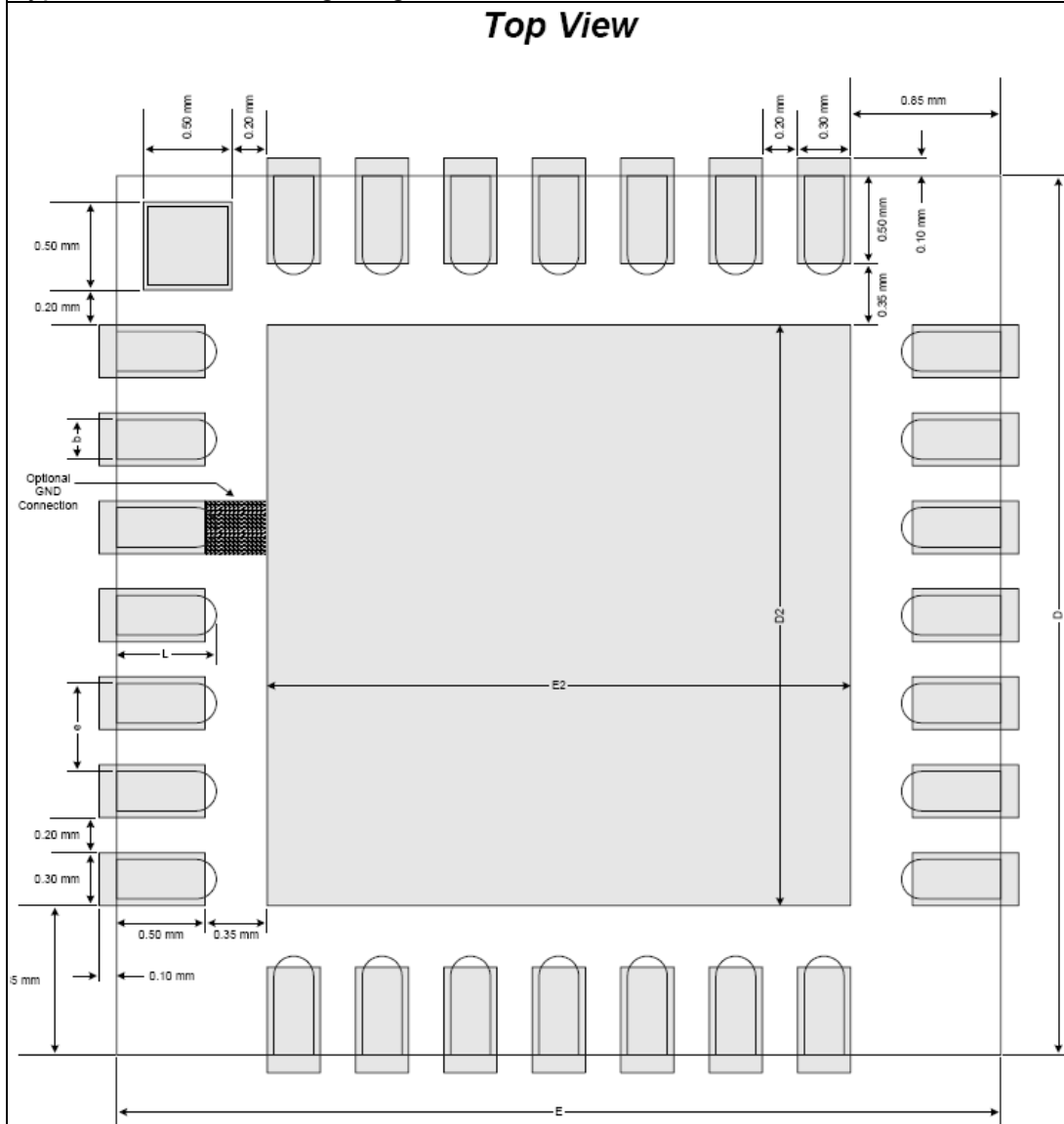
◆ Package

(MLP-28 Package)



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Typical MLP-28 Landing Diagram



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◆ ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Min	Typ	Max	Units
Ambient temperature under bias		-55		125	°C
Storage Temperature		-65		150	°C
Voltage on any Port I/O Pin or /RST with respect to GND		-0.3		5.8	V
Voltage on VDD with respect to GND		-0.3		4.2	V
Maximum Total current through VDD and GND				500	mA
Maximum output current sunk by /RST or any Port pin				100	mA

◆ DC Electrical Characteristics

-40°C to +85°C, 25 MHz System Clock unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Units
Digital Supply Voltage (Note 1)		2.7	3.3	3.6	V
Digital Supply Current with CPU active	VDD=3.3V, Clock=24MHz		10		mA
	VDD=3.3V, Clock=1MHz		0.6		mA
	VDD=3.3V, Clock=32kHz		30		μA
Digital Supply Current with CPU active and USB active (Full or Low Speed)	VDD=3.3V, Clock=24MHz		TBD		mA
	VDD=3.3V, Clock=6MHz		TBD		mA
Digital Supply Current with CPU inactive (not accessing FLASH)	VDD=3.3V, Clock=24MHz		5		mA
	VDD=3.3V, Clock=1MHz		0.3		mA
	VDD=3.3V, Clock=32kHz		14		μA
Digital Supply Current (suspend mode or shutdown mode)	Oscillator not running		< 0.1		μA
Digital Supply RAM Data Retention Voltage			1.5		V

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SYSCCLK (System Clock) (Note 2)	0	25	MHz
TSYSH (SYSCCLK High Time)	18		ns
TSYSL (SYSCCLK Low Time)	18		ns
Specified Operating Temperature Range	-40	+85	°C

Note 1: USB Requires 3.0 V Minimum Supply Voltage.

Note 2: SYSCCLK must be at least 32 kHz to enable debugging.

◆ ADC Electrical Characteristics

VDD = 3.0V, VREF=2.40V, -40°C to +85°C unless otherwise specified

Parameter	Conditions	Min	Typ	Max	Units
DC ACCURACY					
Resolution			10		Bits
Integral Nonlinearity			±0.5	±1	LSB
Differential Nonlinearity			±0.5	±1	LSB
Offset Error			0		LSB
Full Scale Error			-1		LSB
Offset Temperature Coefficient			10		ppm/°C
Dynamic performance(10Khz sine-wave single-ended input, 1 dB below Full Scale, 200ksps					
Signal-to-Noise Plus Distortion		55	55.5		dB
Total Harmonic Distortion			-67		dB
Spurious-Free Dynamic Range			78		dB
Conversion rate					
SAR Conversion clock			3		MHz
Conversion Time in SAR clocks		10			Clocks
Track/Hold Acquisition time		300			ns
Throughput rate				200	ksps

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◆ Voltage Regulator Electrical Specifications

VDD=3.0V; -40°C to +85°C unless otherwise specified

Parameter	Conditions	Min	Typ	Max	Units
Input Voltage Range		4.0		5.25	V
Output Voltage	Output current 1 to 100mA	3.0	3.3	3.6	V
VBUS Detection Input Threshold		1.0	1.8	4.0	V
Bias Current	Normal Mode(REGMOD = 0)		90	TBD	μA
	Low Power Mode(REGMOD=1)		60	TBD	

◆ Reset Electrical Characteristics

-40°C to +85°C unless otherwise specified

Parameter	Conditions	Min	Typ	Max	Units
/RST Output Low Voltage	IOL=8.5mA, VDD=2.7V to 3.6V			0.6	V
/RST Input High Voltage		0.7xVDD			V
/RST Input Low Voltage				0.3xVDD	V
/RST Input pull-up current	/RST=0.0V		25	40	μA
VDD POR Threshold(VRST)		2.40	2.55	2.70	V
Missing Clock Detector timeout	Time from last system clock rising edge to reset initiation	100	220	500	μs
Reset Time Delay	Delay between release of any reset source and code execution at location 0x0000	5.0			μs
Minimum /RST Low Time to Generate a system Reset		15			μs
VDD monitor turn on time		100			μs
VDD monitor supply current			20	50	μA

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◆ Port I/O DC Electrical Characteristics

VDD=2.7 to 3.6 V, -40°C to +85°C unless otherwise specified

Parameter	Conditions	Min	Typ	Max	Units
Output High Voltage	IOH=-3ma, Port IO Push-pull	VDD-0.7	---	---	V
	IOH=-10ua, Port IO Push-pull	VDD-0.1	---	---	
	IOH=-10ma, Port IO Push-pull	---	VDD-0.8	---	
Output Low Voltage	IOL=8.5mA	---	---	0.6	V
	IOL=10uA	---	---	0.1	
	IOL=25mA	---	1.0	---	
Input High Voltage		2.0	---	---	V
Input Low Voltage		---	---	0.8	V
Input Leakage Current	Weak pull-up off	---	---	±1	uA
	Weak pull-up on, VIN=0.0V	---	25	50	