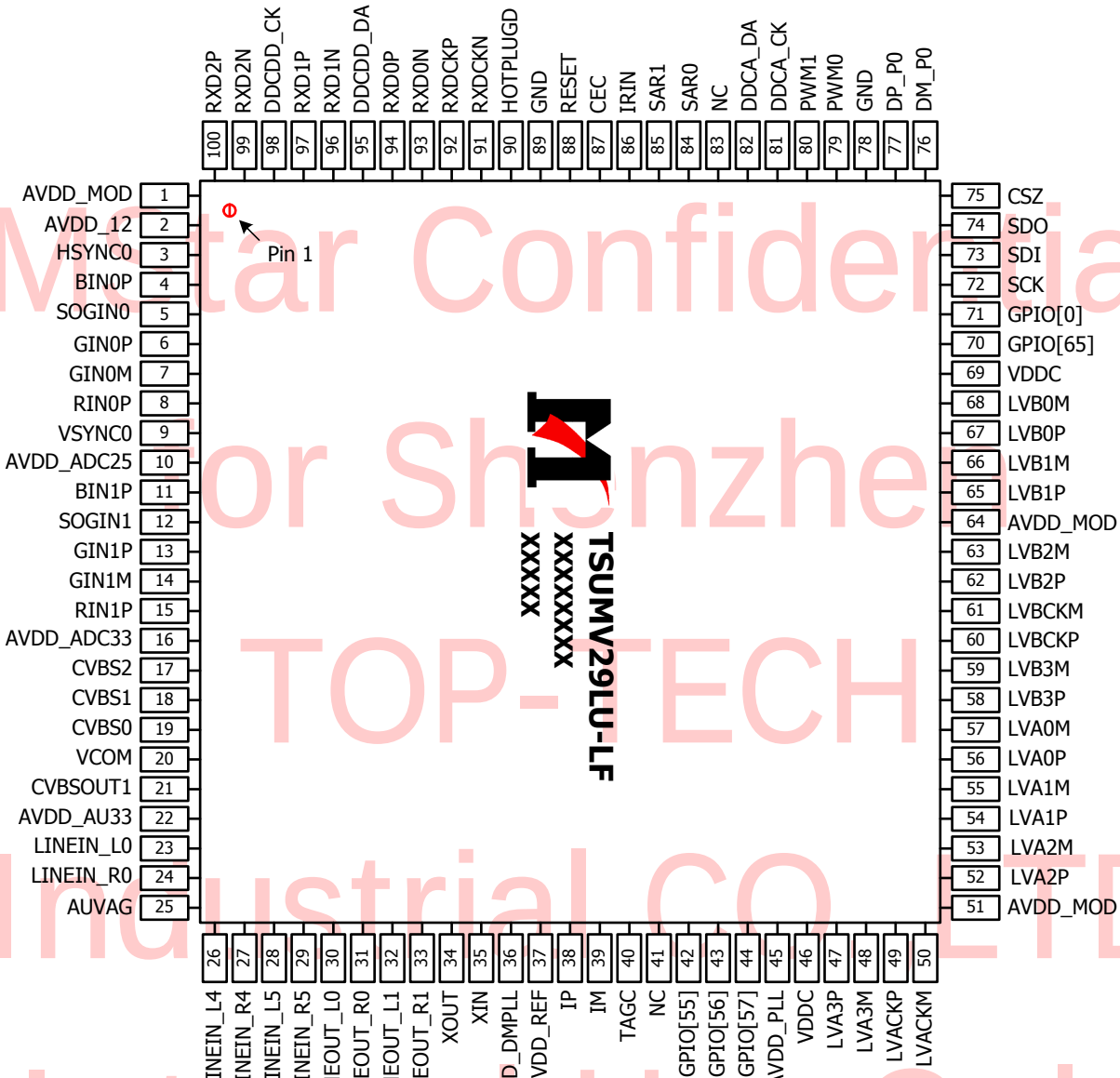
PIN DIAGRAM (TSUMV29LU)



PIN DESCRIPTION

Analog Interface

Pin Name	Pin Type	Function	Pin
HSYNC0	Schmitt Trigger Input w/ 5V-tolerant	HSYNC / Composite Sync for VGA Input from channel 0	3
VSYNC0	Schmitt Trigger Input w/ 5V-tolerant	VSYNC for VGA Input from channel 0	9
BIN0P	Analog Input	Analog Blue Input from Channel 0	4
BIN1P	Analog Input	Analog Blue Input from Channel 1	11
GIN0M	Analog Input	Reference Ground for Analog Green Input from Channel 0	7
GIN1M	Analog Input	Reference Ground for Analog Green Input from Channel 1	14
GIN0P	Analog Input	Analog Green Input from Channel 0	6
GIN1P	Analog Input	Analog Green Input from Channel 1	13
SOGIN0	Analog Input	Sync On Green Input from Channel 0	5
SOGIN1	Analog Input	Sync On Green Input from Channel 1	12
RIN0P	Analog Input	Analog Red Input from Channel 0	8
RIN1P	Analog Input	Analog Red Input from Channel 0	15
IM	Analog Input	ADC I Channel Differential Negative Input	39
IP	Analog Input	ADC I Channel Differential Positive Input	38

Analog Video Input/Output Interface

Pin Name	Pin Type	Function	Pin
CVBS2	Analog Input	CVBS (Composite) Video Input Channel 2	17
CVBS1	Analog Input	CVBS (Composite) Video Input Channel 1	18
CVBS0	Analog Input	CVBS (Composite) Video Input Channel 0	19
VCOM	Analog Input	CVBS Input Reference Ground	20
CVBSOUT1	Analog Output	CVBS (Composite) Video Output Channel 1	21

Analog Audio Input/Output Interface

Pin Name	Pin Type	Function	Pin
LINEIN_L0	Analog Input	Audio Line Input Left Channel 0	23
LINEIN_R0	Analog Input	Audio Line Input Right Channel 0	24
LINEIN_L4	Analog Input	Audio Line Input Left Channel 4	26
LINEIN_R4	Analog Input	Audio Line Input Right Channel 4	27
LINEIN_L5	Analog Input	Audio Line Input Left Channel 5	28

Pin Name	Pin Type	Function	Pin
LINEIN_R5	Analog Input	Audio Line Input Right Channel 5	29
AUVAG	Analog Output	Reference Voltage for Audio Common Mode	25
LINEOUT_L0	Analog Output	Main Audio Output Left Channel 0	30
LINEOUT_R0	Analog Output	Main Audio Output Right Channel 0	31
LINEOUT_L1	Analog Output	Main Audio Output Left Channel 1	32
LINEOUT_R1	Analog Output	Main Audio Output Right Channel 1	33

LVDS Interface

Pin Name	Pin Type	Function	Pin
LVA0M	Output	LVDS A-Link Channel 0 Negative Data Output	57
LVA0P	Output	LVDS A-Link Channel 0 Positive Data Output	56
LVA1M	Output	LVDS A-Link Channel 1 Negative Data Output	55
LVA1P	Output	LVDS A-Link Channel 1 Positive Data Output	54
LVA2M	Output	LVDS A-Link Channel 2 Negative Data Output	53
LVA2P	Output	LVDS A-Link Channel 2 Positive Data Output	52
LVA3M	Output	LVDS A-Link Channel 3 Negative Data Output	48
LVA3P	Output	LVDS A-Link Channel 3 Positive Data Output	47
LVACKM	Output	LVDS A-Link Negative Clock Output	50
LVACKP	Output	LVDS A-Link Positive Clock Output	49
LVB0M	Output	LVDS B-Link Channel 0 Negative Data Output	68
LVB0P	Output	LVDS B-Link Channel 0 Positive Data Output	67
LVB1M	Output	LVDS B-Link Channel 1 Negative Data Output	66
LVB1P	Output	LVDS B-Link Channel 1 Positive Data Output	65
LVB2M	Output	LVDS B-Link Channel 2 Negative Data Output	63
LVB2P	Output	LVDS B-Link Channel 2 Positive Data Output	62
LVB3M	Output	LVDS B-Link Channel 3 Negative Data Output	59
LVB3P	Output	LVDS B-Link Channel 3 Positive Data Output	58
LVBCKM	Output	LVDS B-Link Negative Clock Output	61
LVBCKP	Output	LVDS B-Link Positive Clock Output	60

DVI/HDMI Interface

Pin Name	Pin Type	Function	Pin
RXDCKN	DVI/HDMI Input	Negative DVI/HDMI Input for D Link Clock Channel	91
RXDCKP	DVI/HDMI Input	Positive DVI/HDMI Input for D Link Clock Channel	92

Pin Name	Pin Type	Function	Pin
RXD0N	DVI/HDMI Input	Negative DVI/HDMI Input for D Link Data Channel 0	93
RXD0P	DVI/HDMI Input	Positive DVI/HDMI Input for D Link Data Channel 0	94
RXD1N	DVI/HDMI Input	Negative DVI/HDMI Input for D Link Data Channel 1	96
RXD1P	DVI/HDMI Input	Positive DVI/HDMI Input for D Link Data Channel 1	97
RXD2N	DVI/HDMI Input	Negative DVI/HDMI Input for D Link Data Channel 2	99
RXD2P	DVI/HDMI Input	Positive DVI/HDMI Input for D Link Data Channel 2	100

Serial Flash Interface

Pin Name	Pin Type	Function	Pin
CSZ	Output	SPI Flash Chip Select	75
SDO	Input w/ 5V-tolerant	SPI Flash Serial Data Output	74
SDI	Output	SPI Flash Serial Data Input	73
SCK	Output	SPI Flash Serial Clock	72

GPIO Interface

Pin Name	Pin Type	Function	Pin
GPIO[65]	I/O	General Purpose Input/Output [65]	70
GPIO[57:55]	I/O	General Purpose Input/Output [57:55]	44, 43, 42
GPIO[0]	I/O	General Purpose Input/Output [0]	71
PWM1	Output	Pulse Width Modulation Output; 4mA driving strength	80
PWM0	Output	Pulse Width Modulation Output; 4mA driving strength	79
SAR1	Analog Input	SAR Low Speed ADC Input 1	85
SAR0	Analog Input	SAR Low Speed ADC Input 0	84

USB Interface

Pin Name	Pin Type	Function	Pin
DP_P0	Analog I/O	USB Non Inverting Data Input/Output for Port 0	77
DM_P0	Analog I/O	USB Inverting Data Input/Output for Port 0	76

VIF Interface

Pin Name	Pin Type	Function	Pin
TAGC	Analog Output	Tuner Automatic Gain Control Output	40

Misc. Interface

Pin Name	Pin Type	Function	Pin
DDCDD_CK	Input w/ 5V-tolerant	HDCP Serial Bus Clock / DDC Clock of DVI/HDMI Port D	98
DDCDD_DA	I/O w/ 5V-tolerant	HDCP Serial Bus Data / DDC Data of DVI/HDMI Port D	95
HOTPLUGD	I/O w/ 5V-tolerant	Hot-plug control for DVI/HDMI Port D	90
DDCA_DA	I/O w/ 5V-tolerant	DDC Data for Analog port	82
DDCA_CK	I/O w/ 5V-tolerant	DDC Clock for Analog port	81
RESET	I/O w/ 5V-tolerant	Chip Reset; High Reset	88
CEC	I/O	Consumer Electronics Control	87
IRIN	Input w/ 5V-tolerant	IR Receiver Input	86
XIN	Crystal Oscillator Input	Xin	35
XOUT	Crystal Oscillator Output	Xout	34

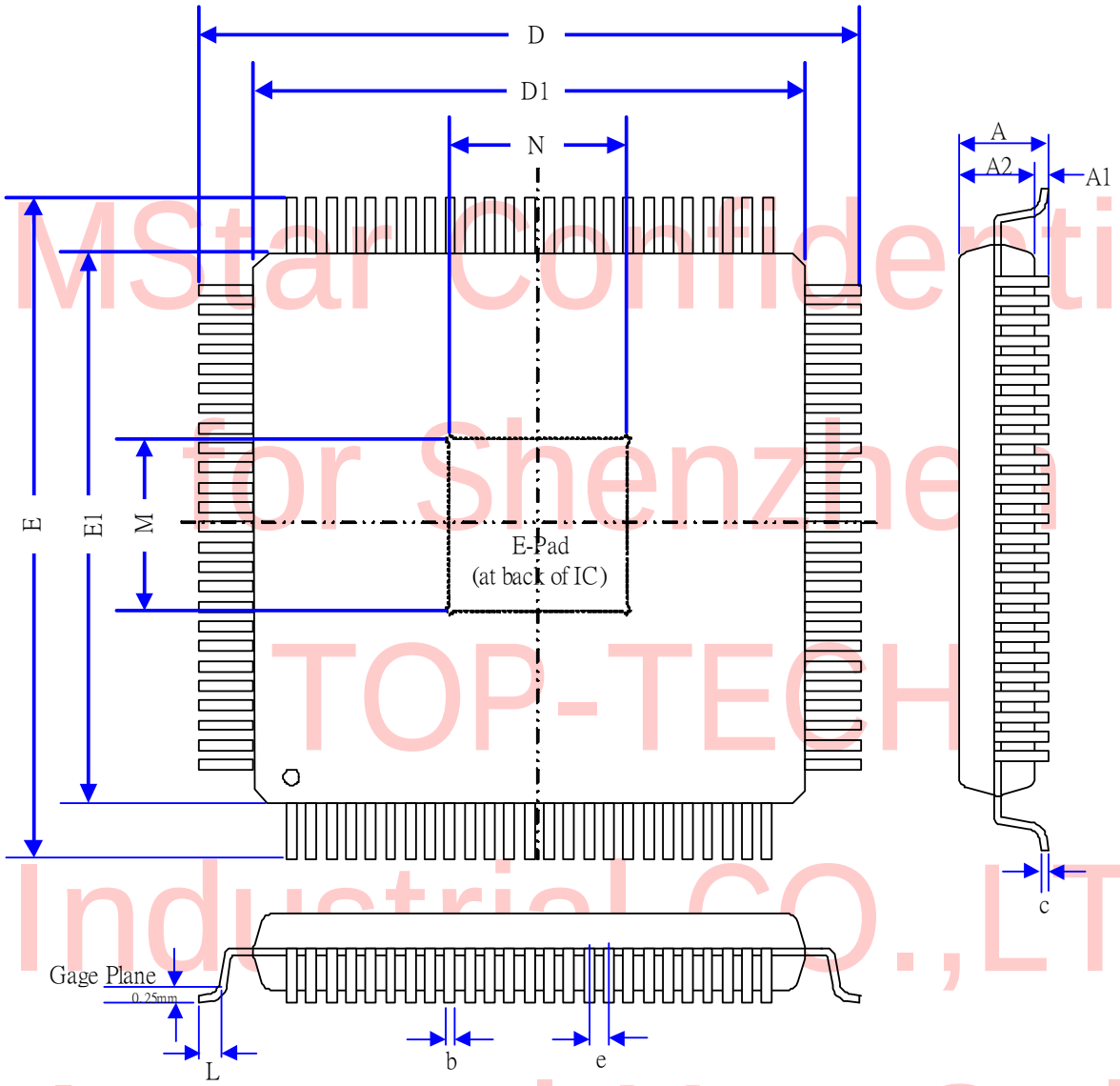
Power Pins

Pin Name	Pin Type	Function	Pin
AVDD_PLL	3.3V Power	PLL Power	45
AVDD_DMPLL	3.3V Power	Crystal Power	36
AVDD_12	1.2V Power	Analog 1.2V Power	2
AVDD_AU33	3.3V Power	Audio Power	22
AVDD_ADC33	3.3V Power	Video ADC Power	16
AVDD_ADC25	2.5V Power	Video ADC Power	10
AVDD_REF	2.5V Power	Demod ADC Power	37
AVDD_MOD	3.3V Power	MOD 3.3V Power	1, 51, 64
VDDC	1.2V Power	Digital Core Power	46
GND	Ground	Ground	78, 89

No Connects

Pin Name	Pin Type	Function	Pin
NC		No connects	41, 83

MECHANICAL DIMENSIONS



Symbol	Millimeter			Inch		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	-	-	1.60	-	-	0.063
A1	0.05	-	0.15	0.002	-	0.006
A2	1.35	1.40	1.45	0.053	0.055	0.057
D	16.00 BSC.			0.630 BSC		
D1	14.00 BSC.			0.551 BSC		
E	16.00 BSC.			0.630 BSC		

Symbol	Millimeter			Inch		
	Min.	Nom.	Max.	Min.	Nom.	Max.
E1	14.00 BSC.			0.551 BSC		
b	0.17	0.20	0.27	0.007	0.008	0.011
c	0.09	-	0.20	0.004	-	0.008
e	0.50 BSC.			0.020 BSC.		
L	0.45	0.60	0.75	0.018	0.024	0.030
M	5.7	5.8	5.9	0.224	0.228	0.232
N	5.7	5.8	5.9	0.224	0.228	0.232

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Electrostatic charges accumulate on both test equipment and human body and can discharge without detection. TSUMV29LU comes with ESD protection circuitry; however, the device may be permanently damaged when subjected to high energy discharges. The device should be handled with proper ESD precautions to prevent malfunction and performance degradation.

REVISION HISTORY

Document	Description	Date
TSUMV29LU_pin_v01	• Initial release	Aug 2011
TSUMV29LU_pin_v02	• Updated pin #47 ~ #68 in Pin Diagram and Pin Description	Oct 2011