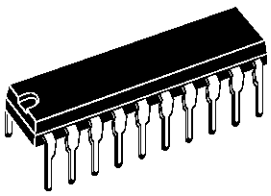
SGS-THOMSON MICROELECTRONICS

STV6400

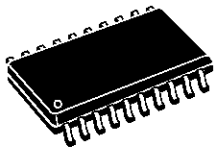
DOUBLE SCART INTERFACE

- TWO PERIPLUGS I/O SOURCES MANAGEMENT
- TWO 150Ω INTEGRATED BUFFERS FOR PLUG DRIVE
- ONE OUTPUT WITH MUTING CAPABILITY
- 3 DIGITAL BUFFER OUTPUTS FOR EXTERNAL SWITCHES CONTROL
- LARGE SUPPLY VOLTAGE RANGE
- BANDWIDTH : 19MHz typ.
- CROSSTALK : 50dB min.
- I^2C BUS CONTROL



DIP20 (0.25)
(Plastic Package)

ORDER CODE : STV6400



SO20
(Plastic Package)

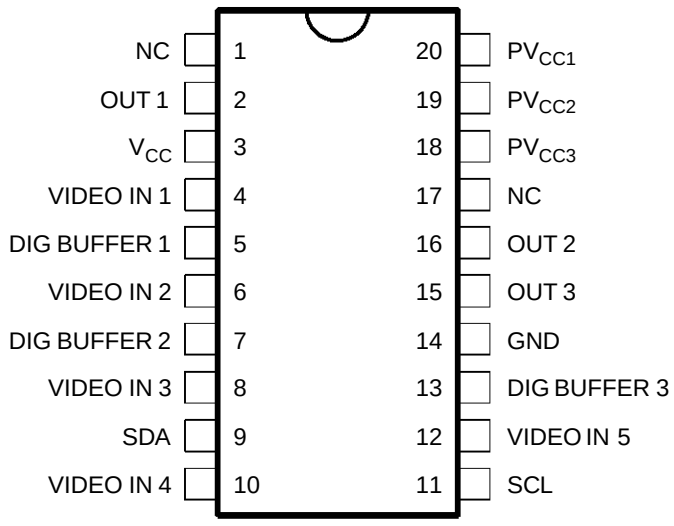
ORDER CODE : STV6400D

DESCRIPTION

The STV6400 is a bipolar circuit for TV and VCR applications.

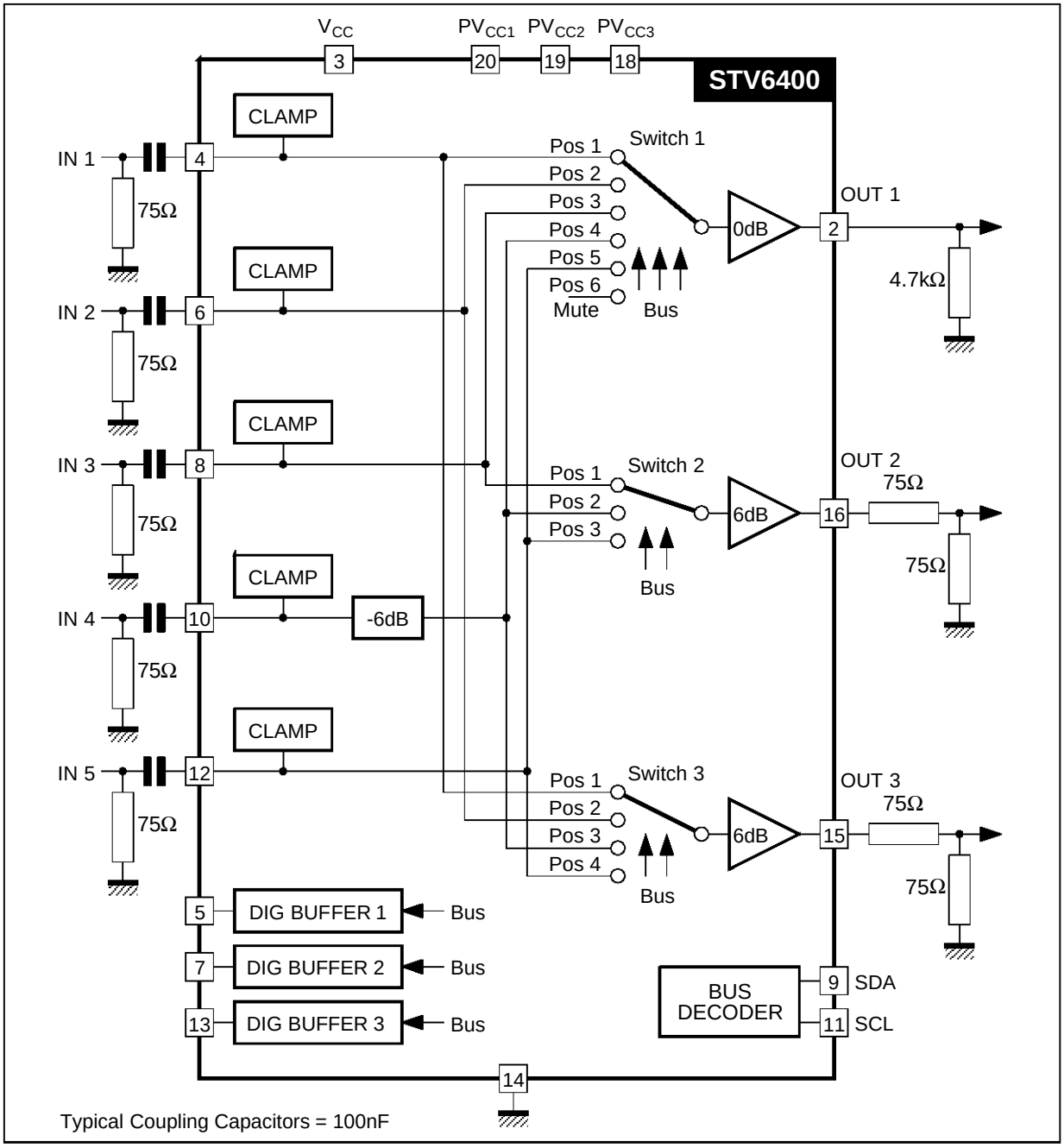
It is intended to process all switches relating to a 2 periplugs I/O application

PIN CONNECTIONS



6400-01.EPS

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	12.0	V
T_{oper}	Operating Temperature	-10, + 70	°C
T_{stg}	Storage Temperature	-55, + 150	°C

6400-01.TBL

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ (j-a)}$	Junction-ambient Thermal Resistance	DIP20 SO20	70 100	$^oC/W$ $^oC/W$

6400-02.TBL

DC AND AC ELECTRICAL CHARACTERISTICS

V_{CC} = 5V, T_{amb} = 25^{o}C (Unless otherwise specified)

$R_{LOAD\ OUT\ 1}$= 4.7kΩ, $R_{LOAD\ OUT2\ OUT3}$ = 150Ω, V_{IN} = 1V_{PP}

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{CC}	Operating Supply Voltage		4,75	5	11.0	V
I_{CC}	Supply Current	Without loads		27	40	mA
Svr	Supply Voltage Rejection	1kHz		-36		dB
VIDEO INPUTS						
V_{DCIN}	DC Input Voltage (black level)			1,4		V
I_{LCAK}	Leakage Current Input			1	3	µA
CAPIN	Input Capacitance			5		pF
V_{IN0}	Input Signal Amplitude	Video 4			2.5	V_{PP}
V_{IN6}	Input Signal Amplitude	Video 1 2 3 5			1.5	V_{PP}
VIDEO OUTPUTS						
DYN	Dynamic Output Signal (out 1)	V_{CC} = 5V	2,5			V_{PP}
DYN	Dynamic Output Signal (out 1)	V_{CC} = 4.75V	2,3			V_{PP}
DYN	Dynamic Output Signal (out 2,3)	V_{CC} = 5V V_{CC} = 4.75V	3 2.8			V_{PP} V_{PP}
BW0	0dB Gain Bandwidth at -3dB	V_{IN} = 1V_{PP}	10	23		MHz
BW6	6dB Gain Bandwidth at - 3dB	V_{IN} = 1V_{PP}	10	19		MHz
CT*	Crosstalk between Input 1, 2, 3, 5 and Output 2,3	V_{IN} = 1V_{PP}, f = 5MHz		-62	-53	dB
CT*	Crosstalk between Input 4, and Output 2,3	V_{IN4} = 2V_{PP}, f = 5MHz		-60	-52	dB
CT*	Crosstalk between Input 1, 2, 3, 5 and Output 1	V_{IN} = 1V_{PP}, f = 5MHz		-60	-55	dB
CT*	Crosstalk between Input 4 and Output 1	V_{IN4} = 2V_{PP}, f = 5MHz		-53	-50	dB
Z_{OUT}	Output Impedance			4	10	Ω
G_0	0dB Gain		-0.5	0	+0.5	dB
G_6	6dB Gain		5.5	6	6.5	dB
DCOUT	DC Output Voltage			0.7		V
DPH10	Differential Phase 0dB Output	V_{IN} =1V_{PP}		0.25		
DPHL6	Differential Phase 6dB Output	V_{IN} =1V_{PP}		0.5		
DGAIN0	Differential Gain 0dB Output	V_{IN} =1V_{PP}		1.5		%
DGAIN6	Differential Gain 6dB Output	V_{IN} =1V_{PP}		1.8		%
MUTE	Muting Suppression at Output 1	V_{IN} =1V_{PP}, f = 5MHz		-50	-45	dB
DIGITAL BUFFERS						
V_{OL}	Low Level Output Voltage	I = 3 mA			0,4	V
Z_{OUT}	Output Resistance at High Level			30		kΩ
DCMAX	Max DC Voltage				V_{CC}	V

6400-03.TBL

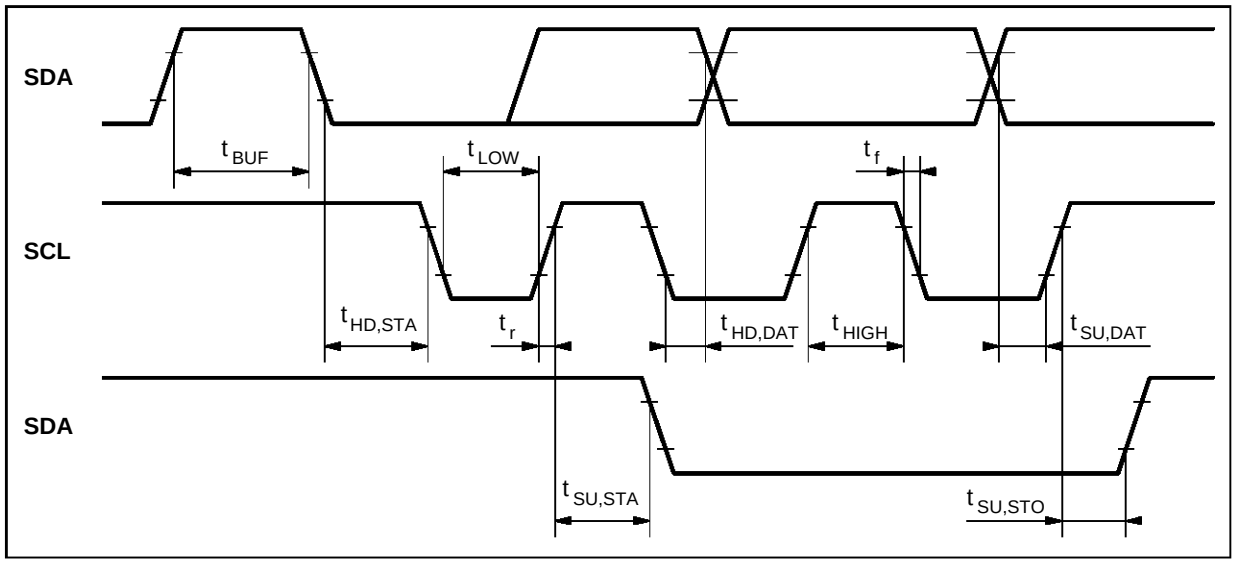
* DIP20 package.

I²C BUS CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Unit
SCL					
V_{IL}	Low Level Input Voltage		- 0.3	+ 1.5	V
V_{IH}	High Level Input Voltage		3.0	V_{CC} + 0.5	V
I_{LI}	Input Leakage Current	V_I = 0 to V_{CC}	- 10	+ 10	µA
f_{SCL}	Clock Frequency		0	100	kHz
t_R	Input Rise Time	1.5V to 3V		1000	ns
t_F	Input Fall Time	1.5V to 3V		300	ns
C_I	Input Capacitance			10	pF
SDA					
V_{IL}	Low Level Input Voltage		- 0.3	+ 1.5	V
V_{IH}	High Level Input Voltage		3.0	V_{CC} + 0.5	V
I_{LI}	Input Leakage Current	V_I = 0 to V_{CC}	- 10	+ 10	µA
C_I	Input Capacitance			10	pF
t_R	Input Rise Time	1.5V to 3V		1000	ns
t_F	Input Fall Time	1.5V to 3V		300	ns
V_{OL}	Low Level Output Voltage	I_{OL} = 3mA		0.4	V
t_F	Output Fall Time	3V to 1.5V		250	ns
C_L	Load Capacitance			400	pF
TIMING					
t_{LOW}	Clock Low Period		4.7		µs
t_{HIGH}	Clock High Period		4.0		µs
$t_{SU, DAT}$	Data Set-up Time		250		ns
$t_{HD, DAT}$	Data Hold Time		0	340	ns
$t_{SU, STO}$	Set-up Time from Clock High to Stop		4.0		µs
t_{BUF}	Start Set-up Time following a Stop		4.7		µs
$t_{HD, STA}$	Start Hold Time		4.0		µs
$t_{SU, STA}$	Start Set-up Time following Clock Low-to High Transition		4.7		µs

6400-04.TBL

Figure 1 : I²C Bus Timing



6400-03.EPS

SOFTWARE SPECIFICATION

I^2C Address Byte

92 HEXA

DATA BYTE

B7	B6	B5	B4	B3	B2	B1	B0	
X	X	0	0					SWITCH 1
					0	0	0	POSITION 1 VIDEO IN 1
					0	0	1	POSITION 2 VIDEO IN 2
					0	1	0	POSITION 3 VIDEO IN 3
					0	1	1	POSITION 4 VIDEO IN 4
					1	0	0	POSITION 5 VIDEO IN 5
					1	0	1	POSITION 6 MUTE
					1	1	0	NOT ALLOWED
					1	1	1	NOT ALLOWED
X	X	0	1					SWITCH 2
					X	0	0	POSITION 1 VIDEO IN 3
					X	0	1	POSITION 2 VIDEO IN 4
					X	1	0	POSITION 3 VIDEO IN 5
					X	1	1	NOT ALLOWED
X	X	1	0					SWITCH 2
					X	0	0	POSITION 1 VIDEO IN 1
					X	0	1	POSITION 2 VIDEO IN 2
					X	1	0	POSITION 3 VIDEO IN 4
					X	1	1	POSITION 4 VIDEO IN 5
X	X	1	1					DIGITAL BUFFER
					X	X	1/0	DIG BUFFER 1
					X	1/0	X	DIG BUFFER 2
					1/0	X	X	DIG BUFFER 3

Remark : The letter "X" means dont't care.

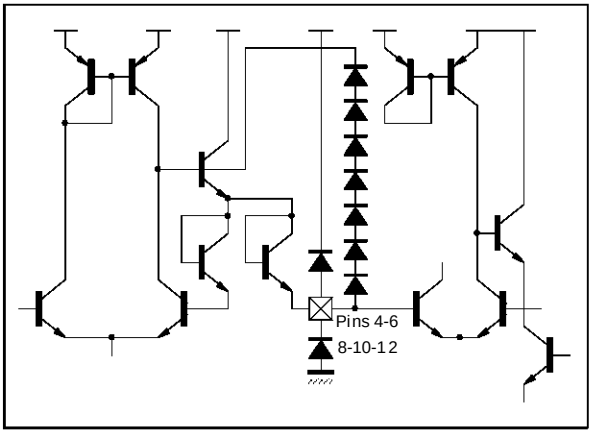
Example : XX00X100 means. The switch 1 is connected to Video input 5

Example : XX11X011 means. Digital buffer 1 is at high level
Digital buffer 2 is at high level
Digital buffer 3 is at low level

The starting condition upon power-on is undetermined.
In this case 4 words of 16 bits are necessary to fix the device configuration.
In other case only one word of 16 bits is necessary to modify one configuration of the device.

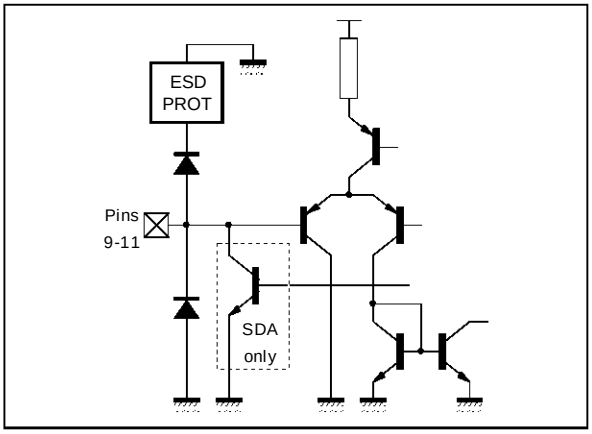
INPUT/OUTPUT PIN CONFIGURATION

Pins 4-6-8-10-12 Video Input



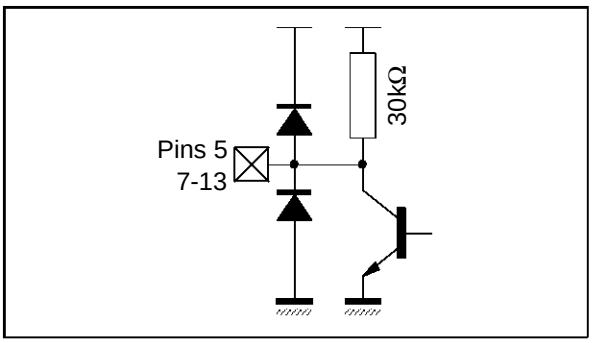
6400-04.EPS

Pins 9 - 11 Bus Inputs



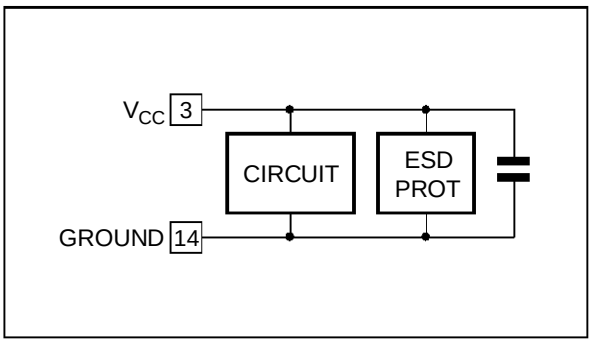
6400-06.EPS

Pins 5-7-13 Digital Buffer Output



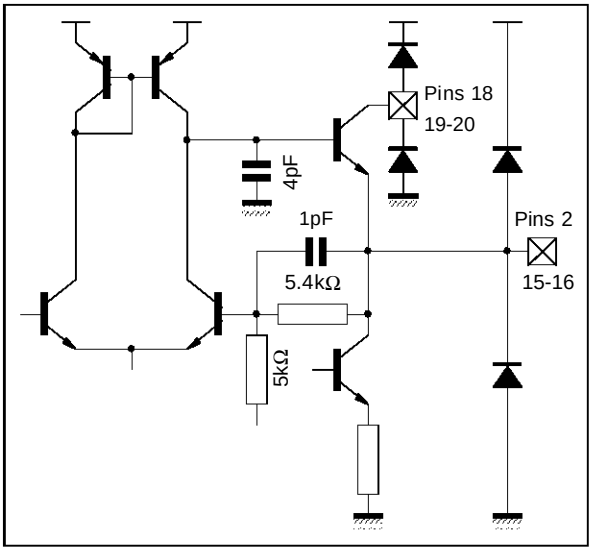
6400-05.EPS

Pins 3-14 Supply Voltage



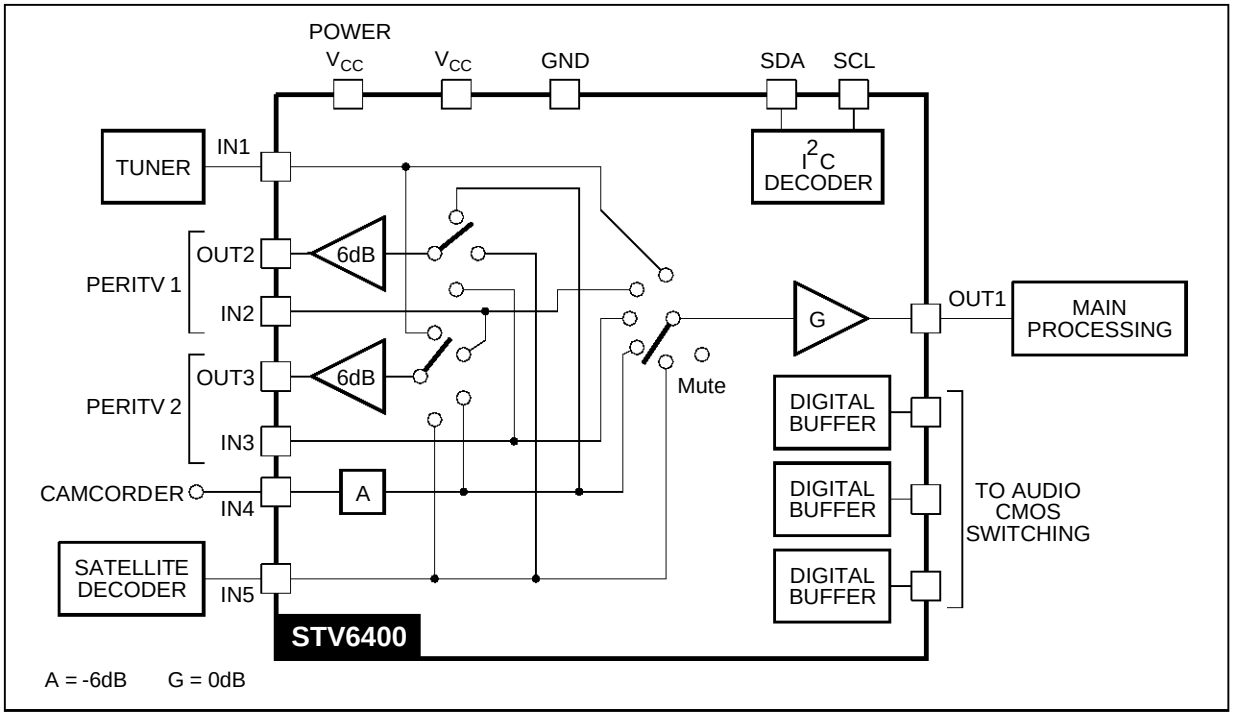
6400-07.EPS

Pins 2-15-16-18-19-20 Video Outputs and PV_{CC}



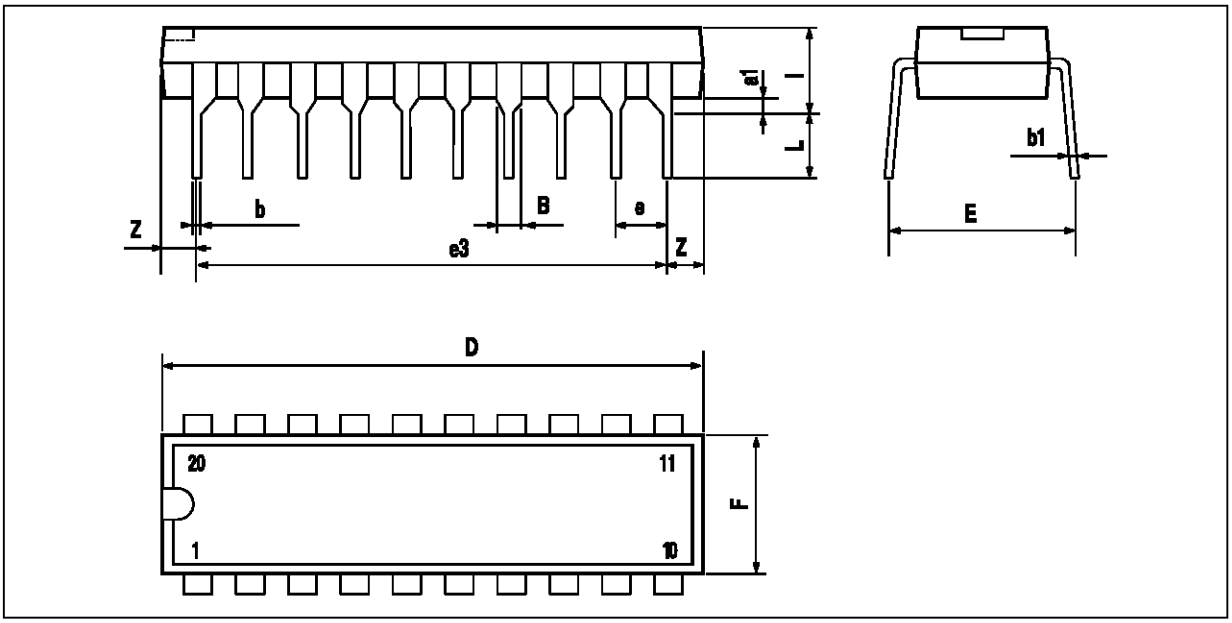
6400-08.EPS

TYPICAL APPLICATION



PACKAGE MECHANICAL DATA

20 PINS - PLASTIC DIP20 (0.25)



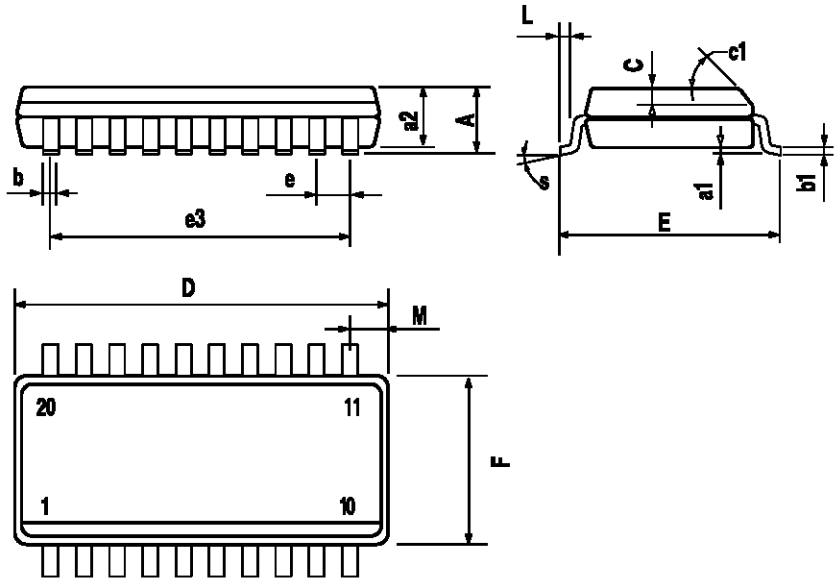
PM-DIP20.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.065
b		0.45			0.018	
b1		0.25			0.010	
D			25.4			1.000
E		8.5			0.335	
e		2.54			0.100	
e3		22.86			0.900	
F			7.1			0.280
I			3.93			0.155
L		3.3			0.130	
Z			1.34			0.053

DIP20.TBL

PACKAGE MECHANICAL DATA

20 PINS - PLASTIC MICROPACKAGE (SO)



PM-SO20.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			2.65			0.104
a1	0.1		0.3	0.004		0.012
a2			2.45			0.096
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45^o (typ.)					
D	12.6		13.0	0.496		0.512
E	10		10.65	0.394		0.419
e		1.27			0.050	
e3		11.43			0.450	
F	7.4		7.6	0.291		0.299
L	0.5		1.27	0.020		0.050
M			0.75			0.030
S	8^o (Max.)					

SO20.TBL