

TS-RDS1

USB 2.0 Compact Card Reader

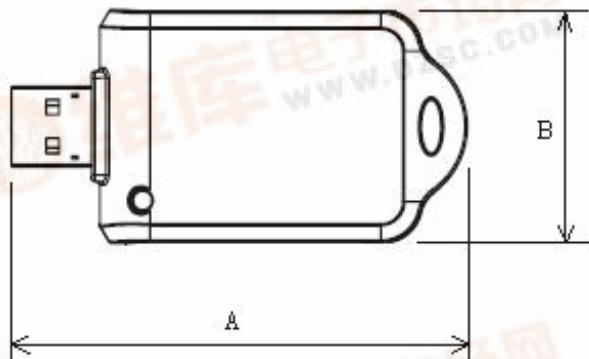
Description

TS-RDS1 is a USB 2.0 Compact Card Reader. It is a small device specifically designed for fast, easy data transfer and exchange using multiple types of Memory Cards. The Card Reader accepts the direct insertion of; **Secure Digital (SD™)**, **Secure Digital High Capacity (SDHC™)**, **miniSD™ (SD™)**, **miniSDHC™**, **MultiMediaCard (MMC™)**, **MMCplus™**, **RS-MMC**, and **MMCmobile™** Memory Cards. In addition the Reader supports **microSD™** and **MMCmicro™** Memory Cards, when combined with their adapter.

Features

- Fully Compliant with the Hi-Speed USB 2.0 specification
- Hi-Speed Data transfer rates of up to 480Mb/s
- USB powered (no external power or battery needed)
- Supports many different types of Memory Cards without the need for an adapter :
 - **Secure Digital Card (SD™)**
 - **Secure Digital High Capacity (SDHC™)**
 - **miniSD™**
 - **miniSDHC™**
 - **MultiMediaCard (MMC™)**
 - **MMCplus™**
 - **RS-MMC**
 - **MMCmobile™**
- Supports additional Memory Cards with an adapter :
 - **microSD™**
 - **MMCmicro™**
- LED indicates power connection

Placement



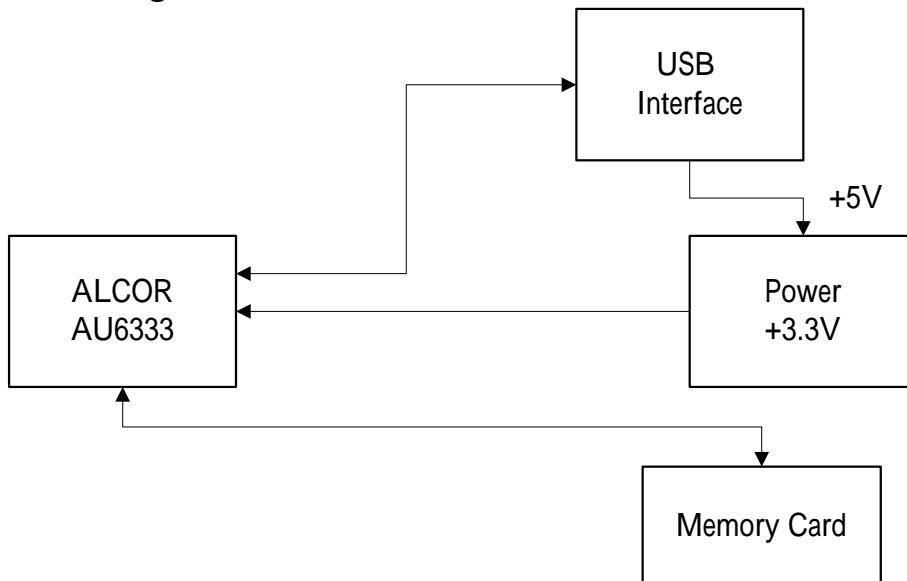
Dimensions

Side	Millimeters	Inches
A	69.00±1.00	2.72±0.04
B	35.00±1.00	1.38±0.04
C	15.00±1.00	0.59±0.04

System Requirements

- Desktop or notebook computer with a working USB port
- One of the following Operating Systems:
 - Windows® 98/98SE
 - Windows® 2000
 - Windows® Me
 - Windows® XP
 - Mac™ OS 9.x, or later
 - Linux™ Kernel 2.4, or later

Block Diagram



Pinouts

Pin No.	Pin Name
01	VCC
02	USB-
03	USB+
04	VSS

Pin Identification

Symbol	Function
USB-	USB differential signal: The pairs are used to transmit Data/Address/Command
USB+	
VSS	Ground
VCC	USB Power Input

TS-RDS1

USB 2.0 Compact Card Reader

Absolute Maximum Rating

SYMBOL	PARAMETER	RATING	UNITS
V_{CC}	Power Supply	-0.3 to $V_{CC}+0.3$	V
V_{IN}	Input Voltage	-0.3 to 3.3	V
V_{OUT}	Output Voltage	-0.3 to $V_{CC}+0.3$	V
T_{STG}	Storage Temperature	-40 to 150	°C

Recommended Operating Conditions

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
V_{CC}	Power Supply	3.0	3.3	3.6	V
V_{IN}	Input Voltage	0	3.3	5.2	V
T_{OPR}	Operating Temperature	-40		115	°C

General DC Characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
I_{IN}	Input current	no pull-up or pull-down	-10	± 1	10	µA
I_{OZ}	Tri-state leakage current		-10	± 1	10	µA
C_{IN}	Input capacitance	Pad Limit		2.8		pf
C_{OUT}	Output capacitance	Pad Limit		2.8		pf
C_{BID}	Bi-directional buffer capacitance	Pad Limit		2.8		pf

DC Characteristics

SYMBOL	PARAMETER	CONDITIONS	Limits			UNIT
			MIN	TYP	MAX	
V_{cc}	Power supply	3.3V I/O	3.0	3.3	3.6	V
V_{il}	Input low voltage	LV TTL			0.8	V
V_{ih}	Input high voltage		2.0			V
V_{ol}	Output low voltage	$ I_{ol} = 2 \sim 16 \text{mA}$			0.4	V
V_{oh}	Output high voltage	$ I_{oh} = 2 \sim 16 \text{mA}$	2.4			V
R_{pu}	Input pull-up resistance	PU=high, PD=low	40	75	190	$\text{K}\Omega$
R_{pd}	Input pull-down resistance	PU=low, PD=high	40	75	190	$\text{K}\Omega$
I_{in}	Input leakage current	$V_{in} = V_{cc}$ or 0	-10	± 1	10	μA
I_{oz}	Tri-state output leakage current		-10	± 1	10	μA

USB Transceiver Electrical Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
AVCC	Analog supply current		3.0	3.3	3.6	V
VCC	Digital supply current		2.25	2.5	2.75	V
I_{cc}	Operating supply current	High speed operating at 480 MHz			73	mA
$I_{cc(susp)}$	Suspend supply current	In suspend mode, current with $1.5\text{k}\Omega$ pull-up resistor on pin RPU disconnected			120	μA

Above technical information is based on industry standard data and tested to be reliable. However, Transcend makes no warranty, either expressed or implied, as to its accuracy and assumes no liability in connection with the use of this product. Transcend reserves the right to make changes in specifications at any time without prior notice.