

Low-Capacitance Bidirectional Micro Packaged

◆ DESCRIPTIONS

The CMTLS523C6R0AFE is designed with Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

This series has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

◆ FEATURES

- 1、Peak Power Dissipation – 80 W (8 x 20 us Waveform)
- 2、Stand-off Voltage: 5.0 V
- 3、Replacement for MLV (0603)
- 4、Protects I/O Port
- 5、Low Clamping Voltage
- 6、Low Leakage
- 7、Low Capacitance
- 8、Low Body Height: 1.68mm
- 9、Low capacitance (<6.0pF) for high-speed interfaces
- 10、No insertion loss to 1.0GHz
- 11、Response Time is < 1 ns
- 12、Meets MSL 1 Requirements
- 13、ROHS compliant
- 14、Solid-state Punch-Through TVS Process technology

◆ ORDERING INFORMATION

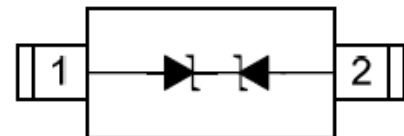
Part No.	Package	Material	Qty per Reel	Packing
CMTLS523C6R0AFE	SOD-523	Halogen free	3000	Tape

◆ Circuit Diagram



SOD-523

◆ Pin Configuration



◆ Main applications

- 1、High Speed Line :USB1.0/2.0, VGA, DVI, SDI,
- 2、Serial and Parallel Ports
- 3、Notebooks, Desktops, Servers
- 4、Projection TV
- 5、Cellular handsets and accessories
- 6、Portable instrumentation
- 7、Peripherals

◆ Protection solution to meet

- 1、IEC61000-4-2 (ESD)
±15kV (air),
±8kV (contact)
- 2、IEC61000-4-4 (EFT) 40A (5/50ns)

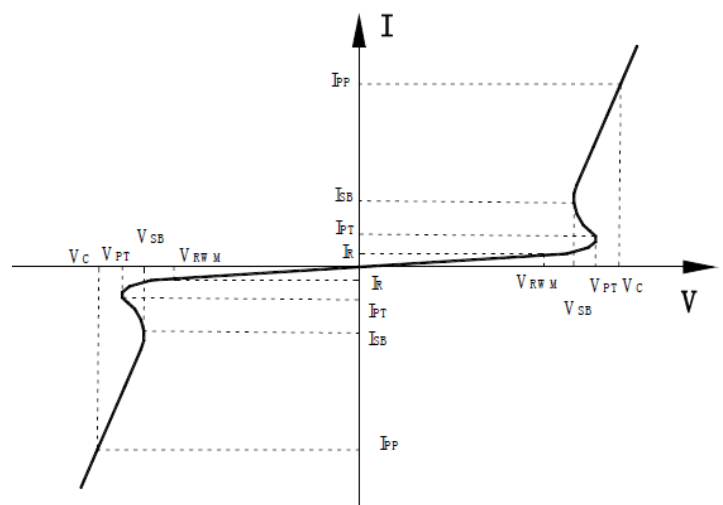
◆ **ABSOLUTE MAXIMUM RATINGS**

Characteristics	Symbol	Rating	Unit
Peak Pulse Power (tp=8/20μs waveform)	I _{PPP}	8.5	W
Operating Supply Voltage	V _{DC}	6	V
ESD Per IEC61000-4-2 (air discharge)	V _{ESD1}	±15kV	kV
ESD Per IEC61000-4-2 (contact discharge)	V _{ESD2}	±8kV	kV
Lead Soldering Temperature	T _{SOL}	260(10sec.)	°C
Operating Temperature	T _{OP}	-55 ~ +125	°C
Storage Temperature	T _{STO}	-55 ~ +150	°C

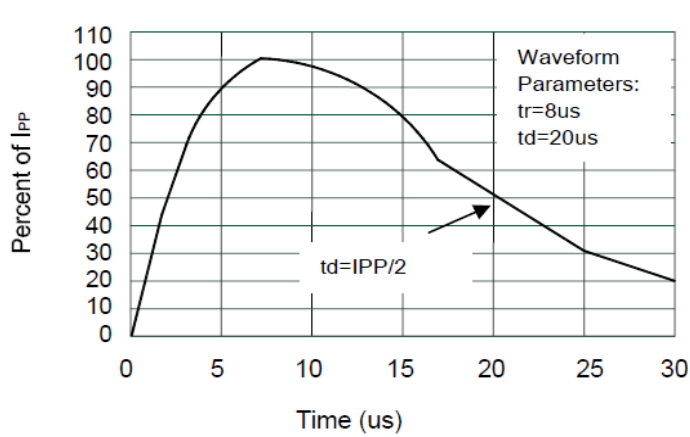
◆ **ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)**

Characteristics	Symbol	Test Condition	Min.	Typ.	Max.	Unit.
Reverse Stand-Off Voltage	V _{RWM}	T=25°C			5	V
Reverse Leakage Current	I _{Leak}	V _{RWM} =5V, T=25°C			2.0	μA
Reverse Breakdown Voltage	V _{BV}	I _{BV} =1mA, T=25°C	6.1		9	V
Clamping Voltage	V _{CL}	I _{PP} =5A, T _P =8/20μs, T=25°C		7	8	V
Clamping Voltage	V _{CL}	I _{PP} =9.4A, T _P =8/20μs, T=25°C		17	18.6	V
ESD Holding Voltage	V _{hold}	IEC 61000-4-2 6KV, T=25°C, Contact mode		10.5		V
Channel Input Capacitance	C _{IN}	V _P =0V, f=1MHz, T=25°C		4.5	6.0	pF

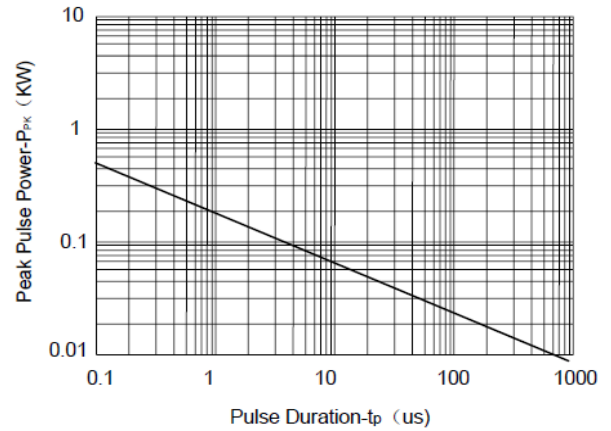
Symbol	Parameter
V _{RWM}	Nominal Reverse Working Voltage
V _{PT}	Punch-Through Voltage@ IPT
V _{SB}	Snap-Back Voltage@ ISB
V _C	Clamping Voltage @ IPP
I _T	Test Current
I _{RM}	Leakage current at VRWM
I _{PP}	Peak pulse current
C _O	Off-state Capacitance
C _J	Junction Capacitance



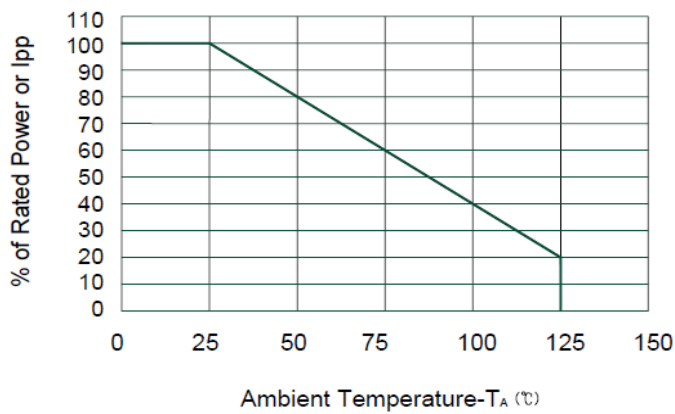
◆ **TYPICAL ELECTRICAL CHARACTERISTICS CURVE**



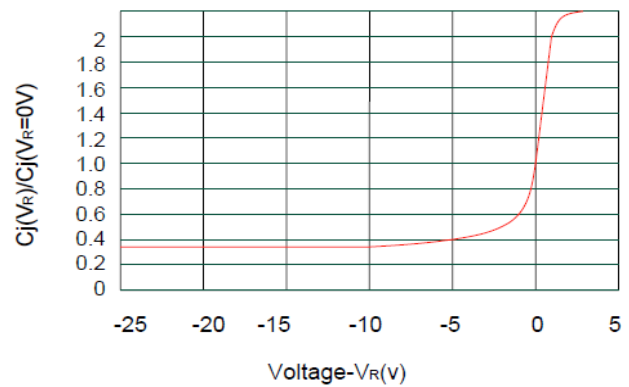
Pulse Waveform



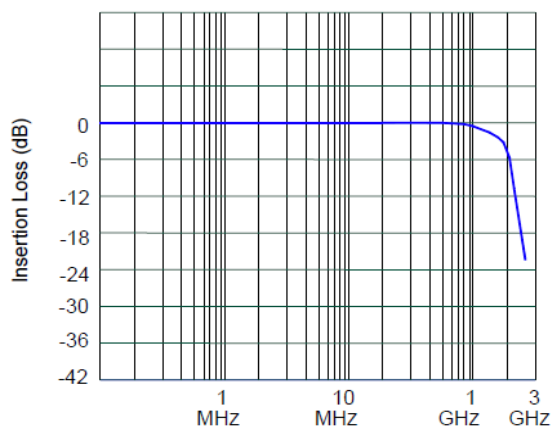
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

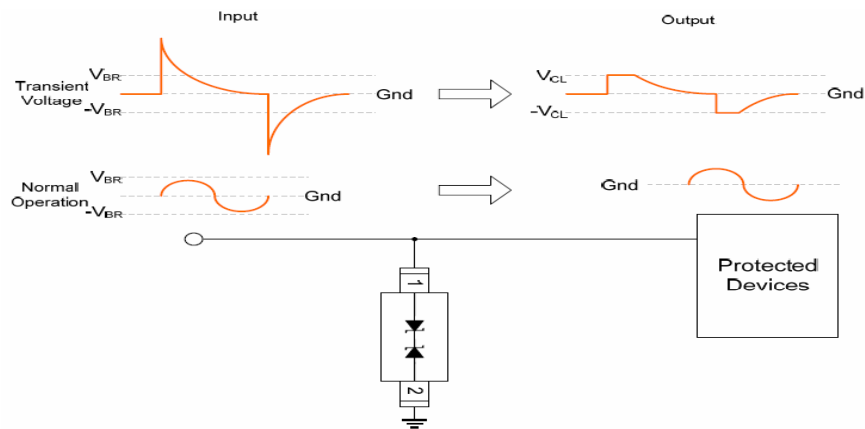


Junction Capacitance vs. Reverse Voltage

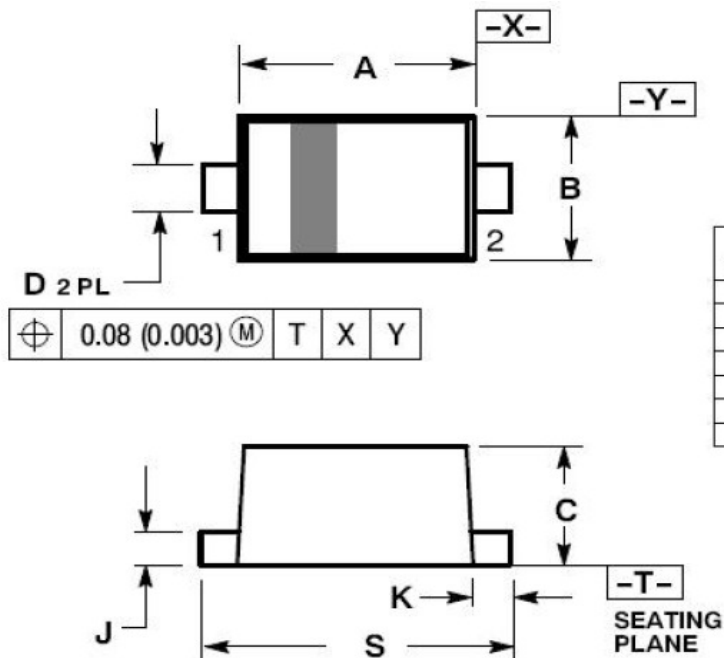


Insertion Loss S21

◆ TYPICAL APPLICATIONS



◆ PACKAGE OUTLINE



◆ SOLDERING FOOTPRINT

