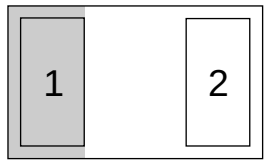
Features

• ESD / transient protection of high speed data lines exceeding:
– IEC61000-4-2 (ESD): ±20 kV (air / contact)
– IEC61000-4-4 (EFT): 2.5 kV / 50 A (5/50 ns)
– IEC61000-4-5 (surge): 3 A (8/20 µs)
• Maximum working voltage: VRWM = 3.3 V
• Ultra low capacitance CL = 0.4 pF (typical)
• Very low clamping voltage: VCL= 8 V at IPP = 16 A (typical)
• Very low dynamic resistance: RDYN = 0.19 Ω (typical)
• Pb-free and halogen-free package (RoHS compliant)

DFN0603-D

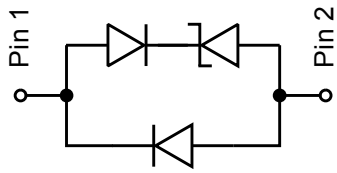


Transparent
top view

Application Examples

• USB 3.0
• 10/100/1000 Ethernet
• Firewire
• DVI
• HDMI
• S-ATA, DisplayPort
• Mobile HDMI Link, MDDI, MIPI, SWP / NFC

PIN CONFIGURATION



Maximum Rating at TA = 25 °C, unless otherwise specified

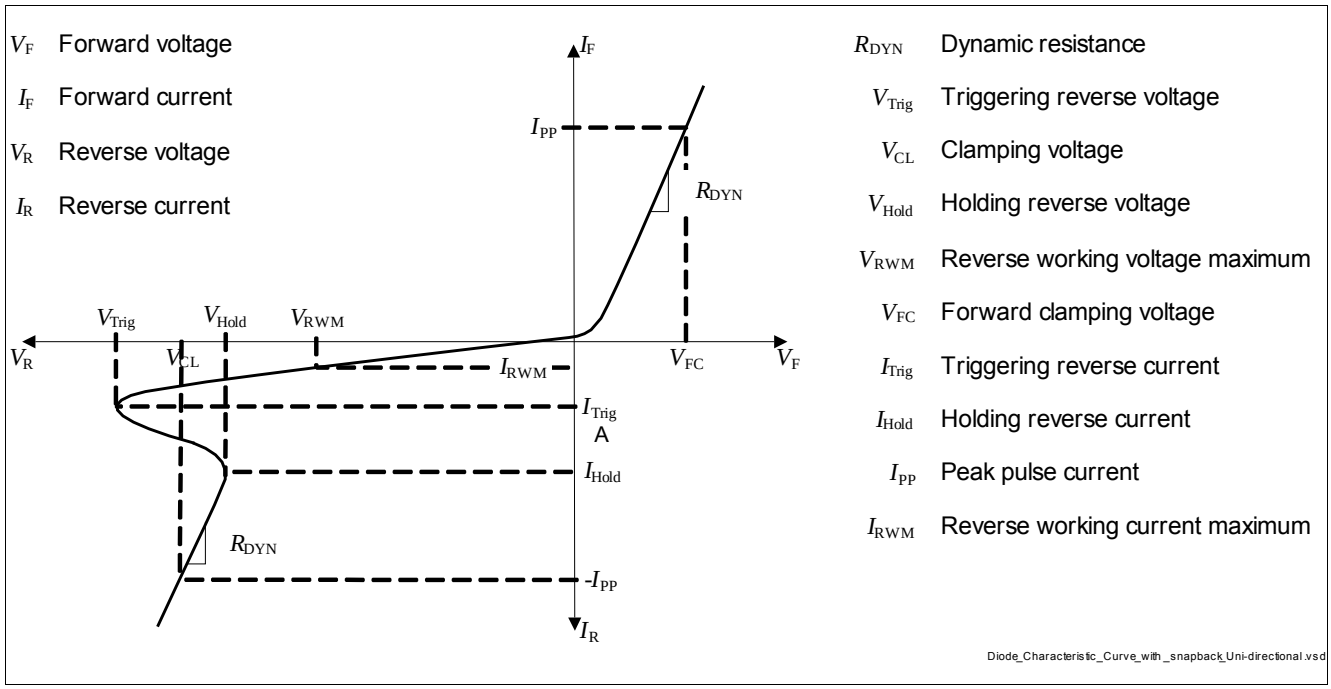
Parameter	Symbo	Min.	Typ.	Max	Units
ESD (air / contact) discharge[1)]	V_{ESD}			20	kV
Peak pulse current (tp = 8/20 µs)[2)]	I_{PP}			3	A
Operating temperature range	T_{OP}	-40		125	°C
Storage temperature	T_{stg}	-65		150	°C

1) VESD according to IEC61000-4-2 (R = 330 Ω, C = 150 pF)
2) IPP according to IEC61000-4-5

DC Characteristics at TA = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Min.	Typ.	Max	Units
Peak Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	IR = 1 mA from Pin 1 to Pin 2 voltage forced		6.5		V
Reverse Leakage Current	I_R	VR = 3.3 V,from Pin 1 to Pin 2			0.05	µA
Junction Capacitance	C_j	VR=0V f = 1MHz		0.4	0.65	pF

Electrical Characteristics at T_A = 25 °C, unless otherwise specified

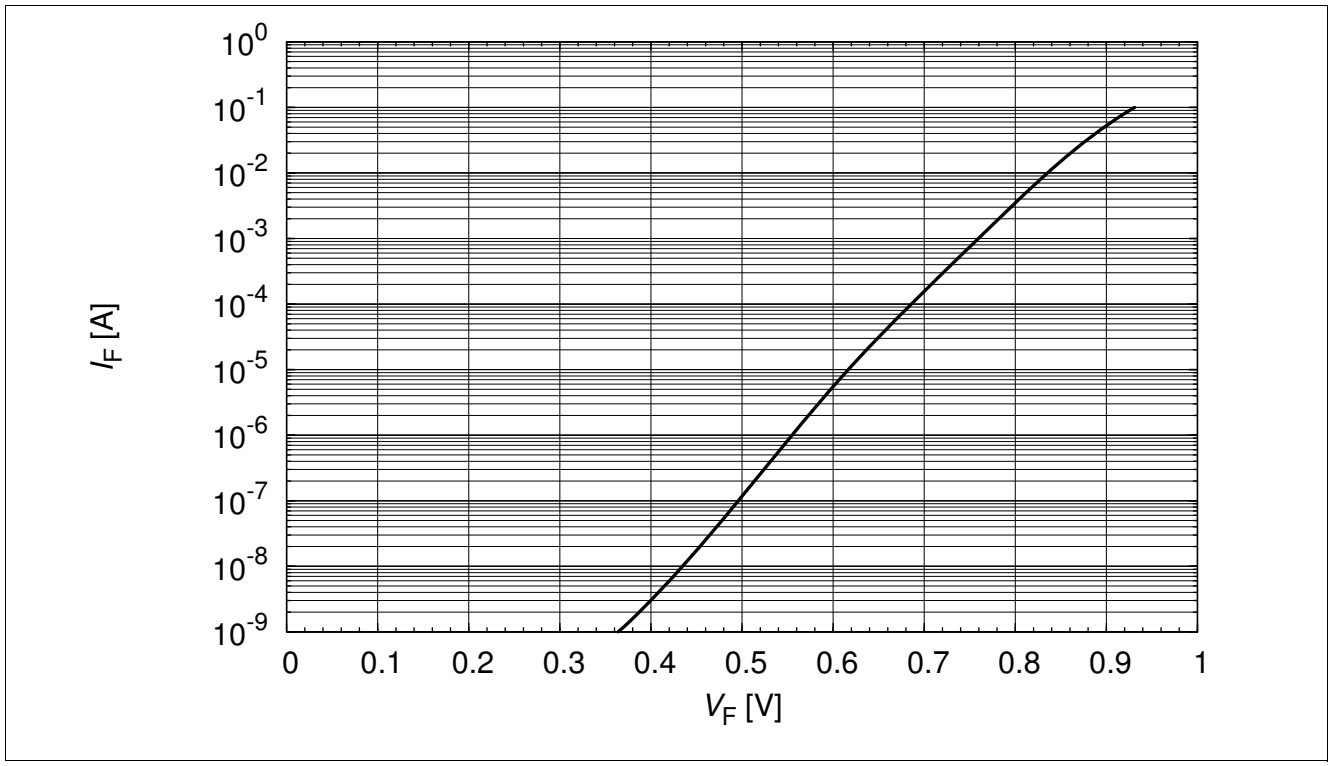


ESD Characteristics at TA = 25 °C, unless otherwise specified

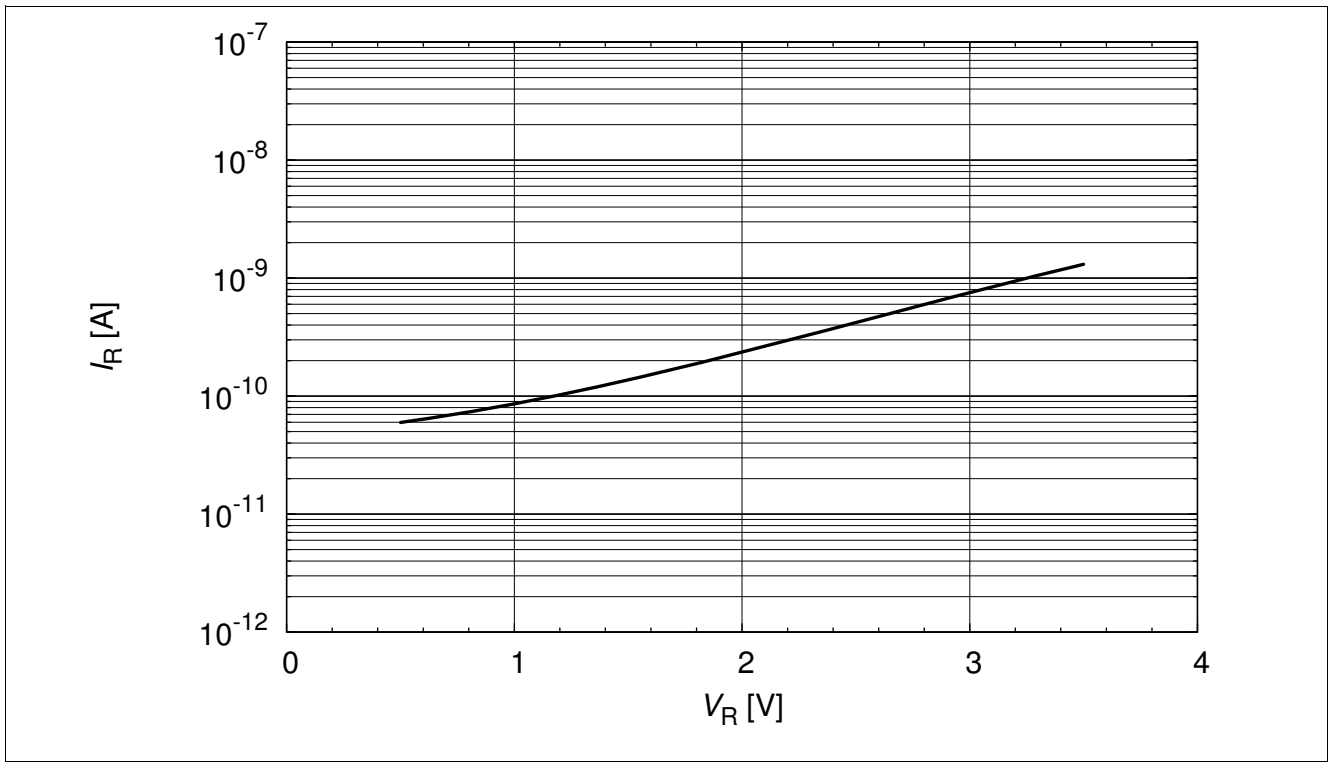
Parameter	Symbol	Conditions	Min.	Typ.	Max	Units
Trigger voltage1)	VTRIG	TLP,from Pin 1 to Pin 2		7.2		V
Reverse clamping voltage1)	VCL	TLP, IPP = 16 A,from Pin 1 to Pin 2		8		V
		TLP, IPP = 30 A,from Pin 1 to Pin 2		11		V
Forward clampingvoltage1)	VFC	TLP, IPP = 16 A,from Pin 2 to Pin 1		6		V
		TLP, IPP = 30 A,from Pin 2 to Pin 1		9		V
Dynamic resistance1)	RDYN	TLP, Pin 1 to Pin 2		0.19		Ω
		TLP, Pin 2 to Pin 1		0.23		Ω

1)Please refer to Application Note AN210. ANSI/ESD STM5.5.1 - Electrostatic Discharge Sensitivity Testing using Transmission Line Pulse (TLP), tp = 100ns, tr = 0.6 ns, ITLP and VTLP averaging window: t1 = 30 ns to t2 = 60 ns, extraction of dynamic TLP characteristic between IPP1 = 10 A and IPP2 = 40 A.

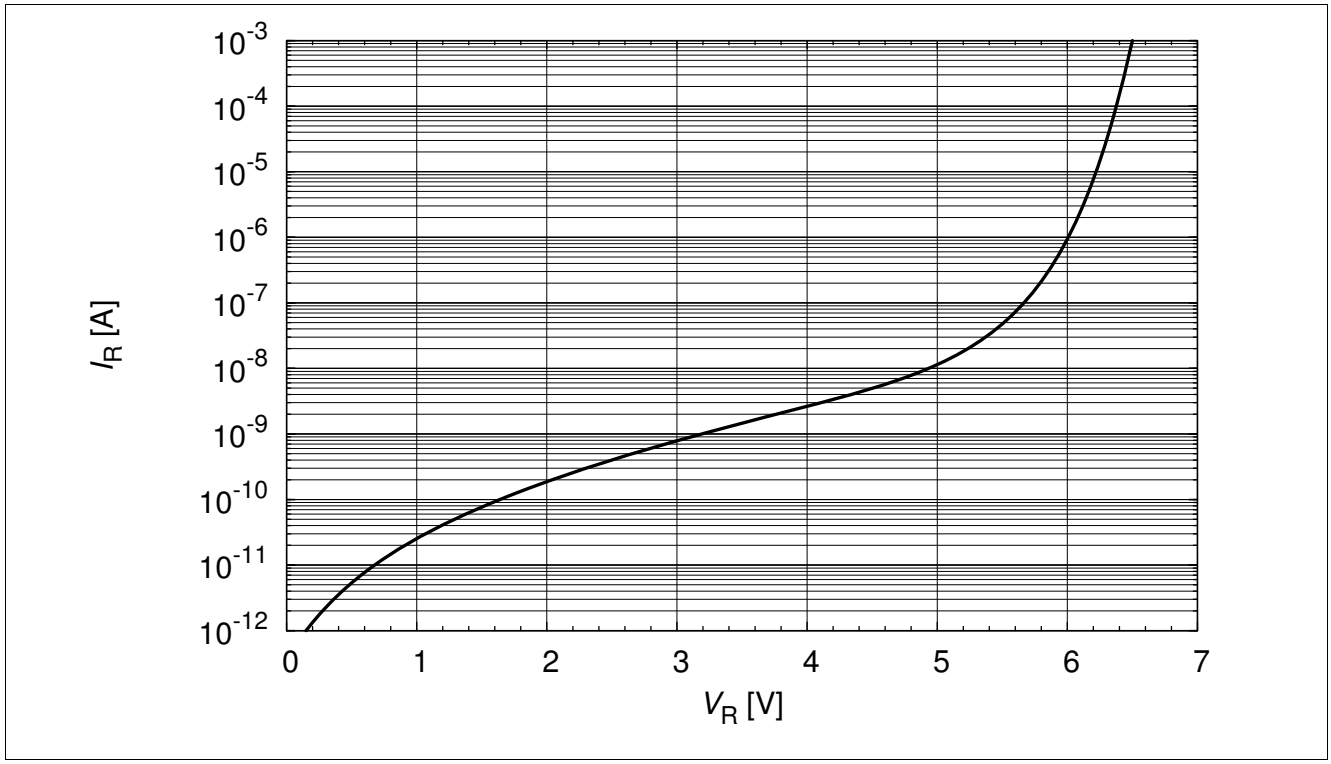
Typical Characteristics at T_A=25°C, unless otherwise specified



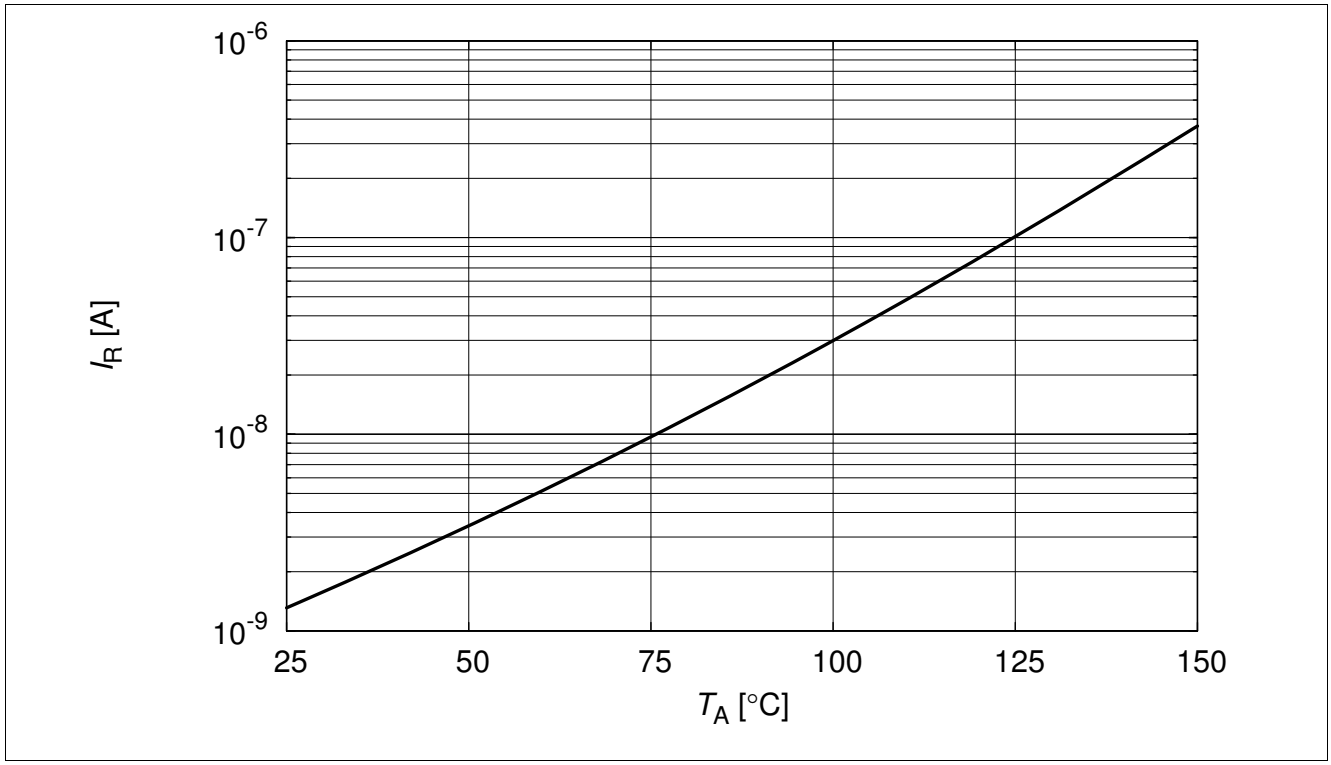
Forward current, I_F = (V_F)



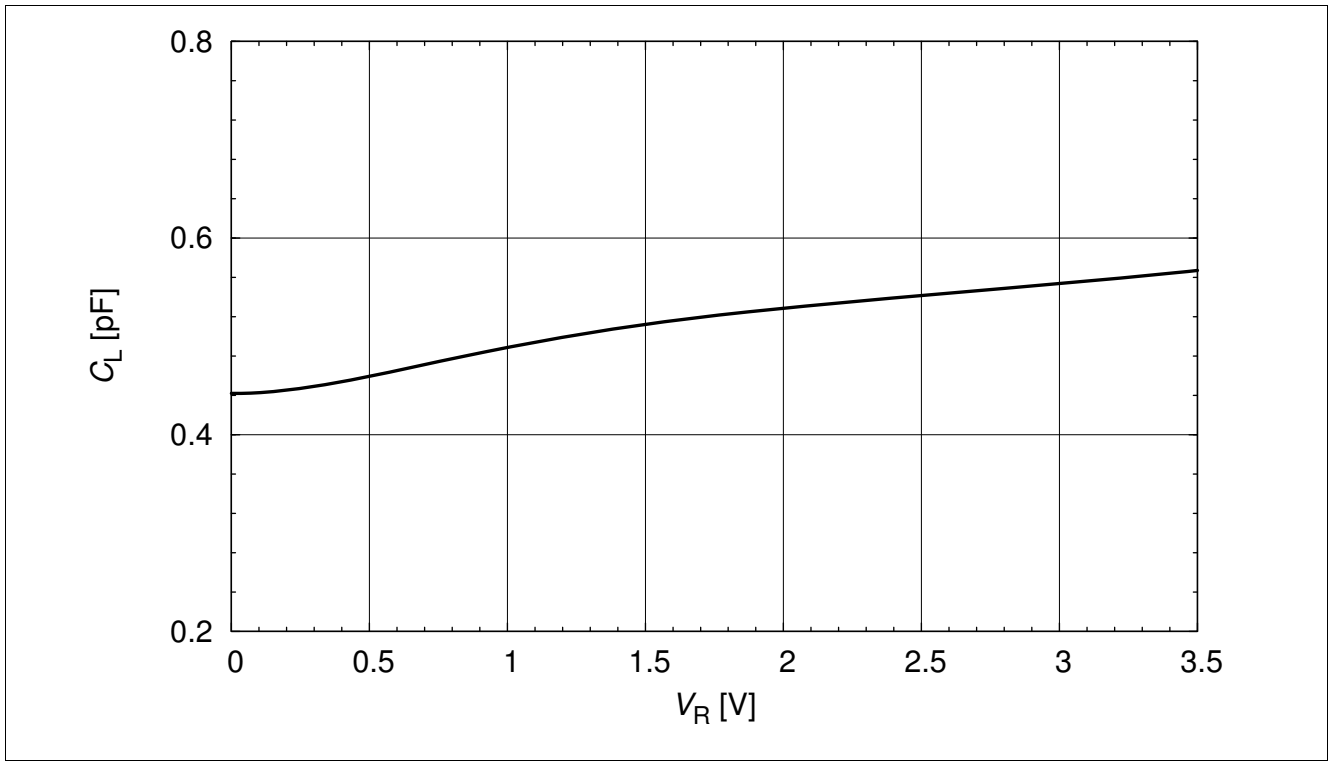
Reverse current, I_R = (V_R)



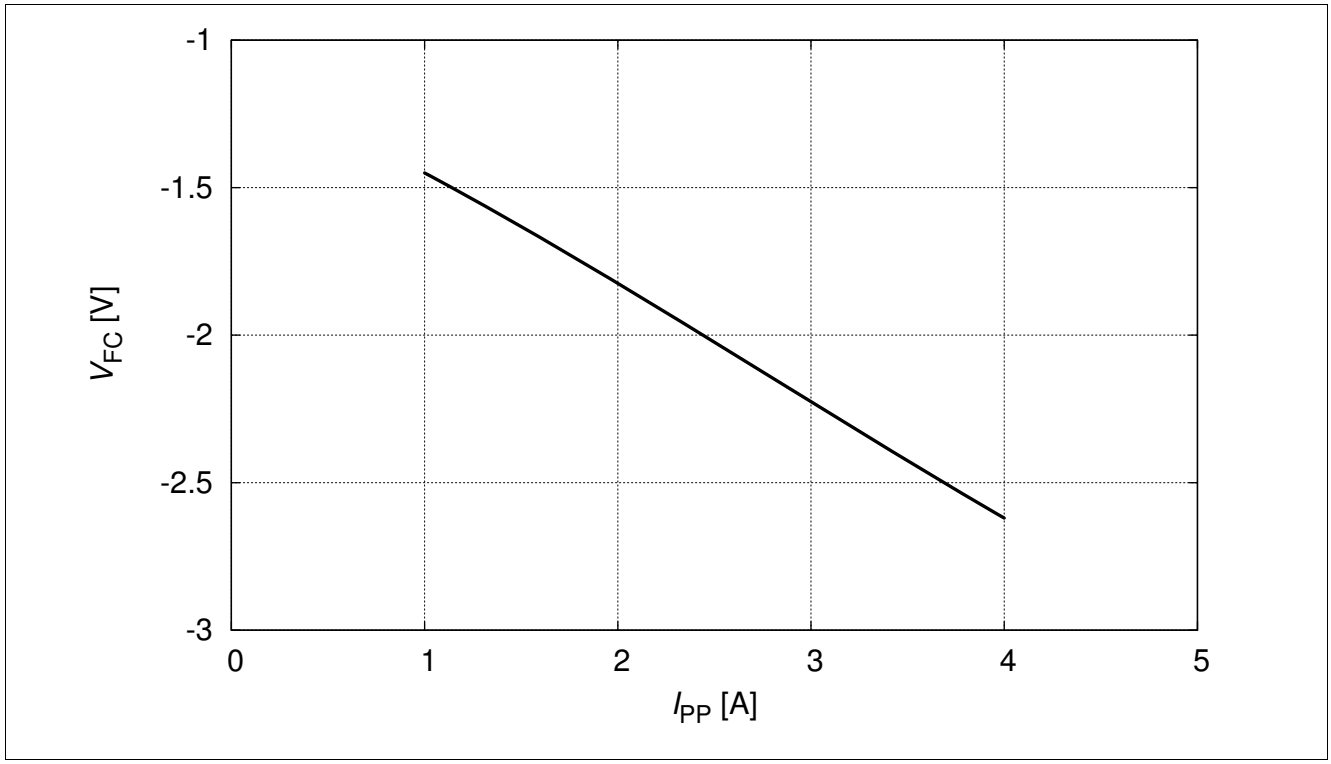
Reverse voltage characteristic, $I_R = (V_R)$



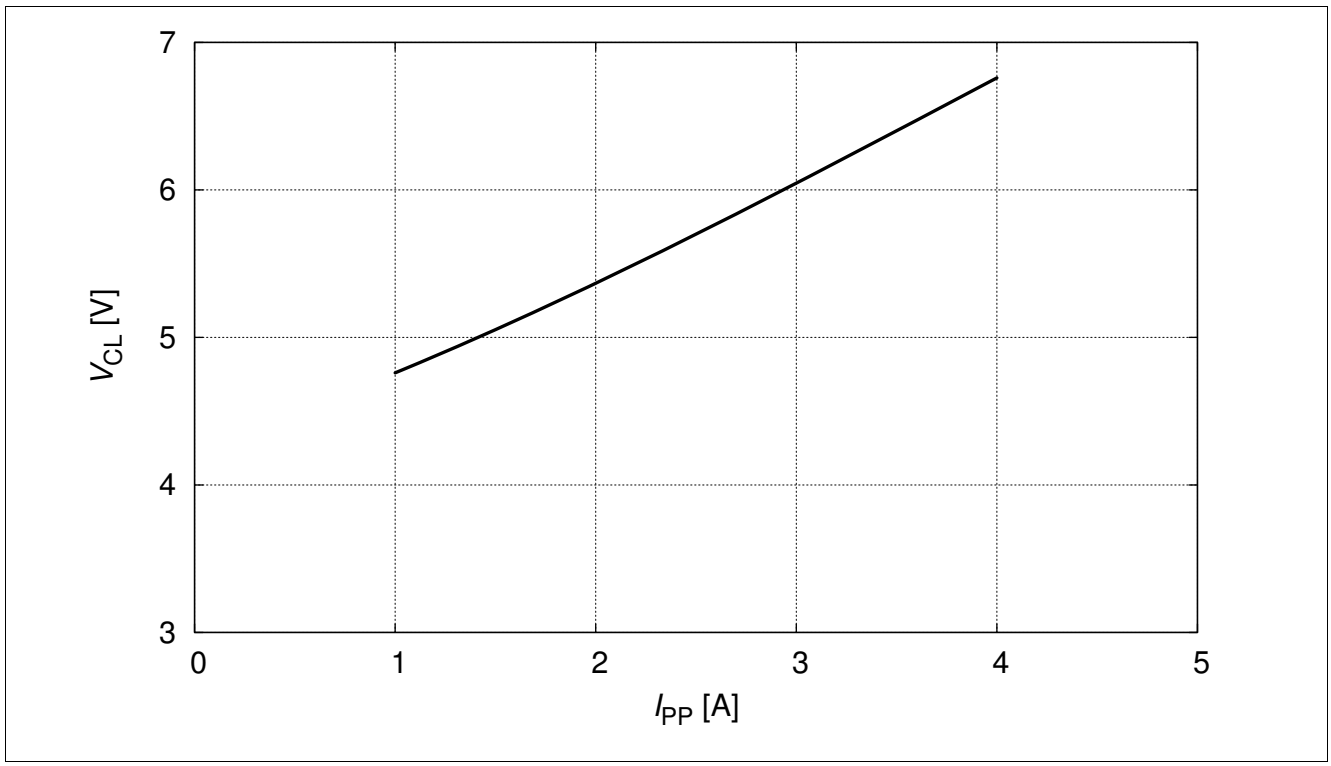
Reverse current $I_R = f(T_A)$, V_R = 3.3 V



Line capacitance $C_L = f(V_R)$, f = 1MHz, from pin 1 to pin 2



Forward clamping voltage $I_{PP} = f(V_{FC})$, from pin 1 to pin 2 according to IEC61000-4-5 (8/20 µs)



Reverse clamping voltage $I_{PP} = f(V_{CL})$, from pin 1 to pin 2 according to IEC61000-4-5 (8/20 µs)

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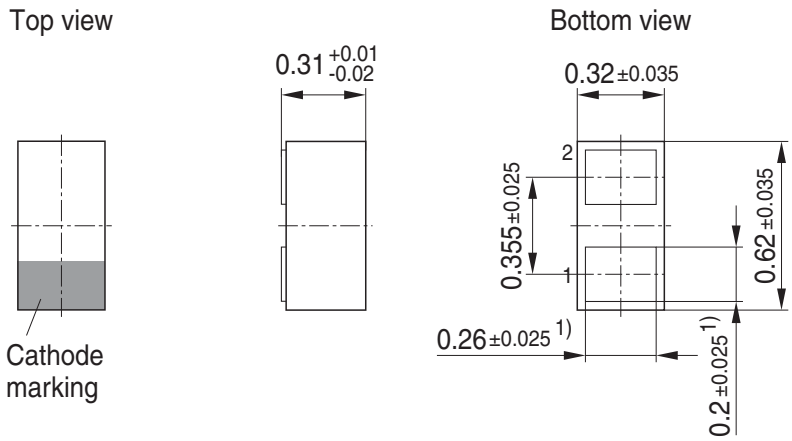
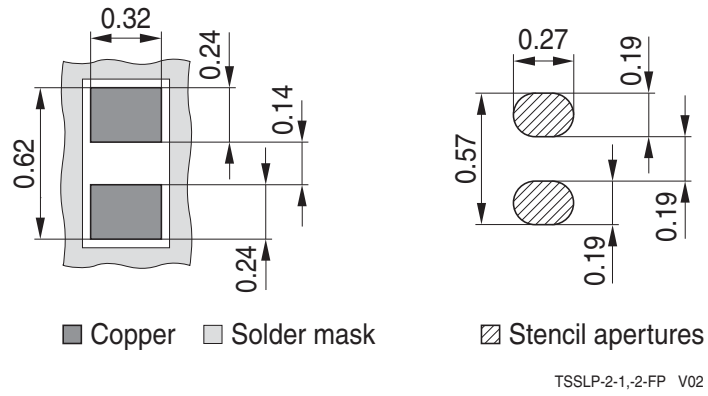
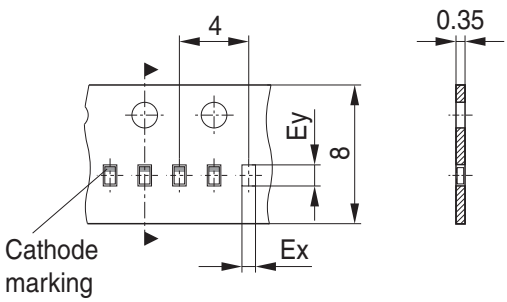


1) Dimension applies to plated terminal

TSSLP-2-1,-2-PO V05



TSSLP-2-1,-2-FP V02



Tape type	Ex	Ey
Punched Tape	0.43	0.73
Embossed Tape	0.37	0.67

Deliveries can be both tape types (no selection possible).
Specification allows identical processing (pick & place) by user