



Small-Signal Chip Diode

Features

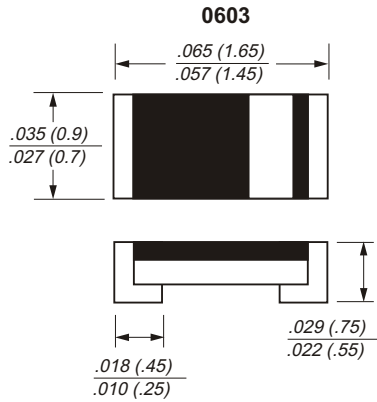
- This diode is also available in other case styles including the 1206 case with the type designation CD4148WP, the 0805 case with the type designation CD4148WSP
- Silicon Epitaxial Planar Diode
- Fast switching diode.

Mechanical Data

Case:0603

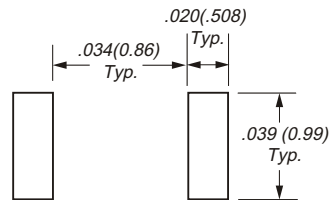
Weight : approx. 4 mg

Marking : Cathode band



Dimensions in inches and (millimeters)

Mounting Pad Layout



Absolute Maximum Ratings & Thermal Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Unit
Reverse voltage	V_R	75	V
Peak reverse voltage	V_{RM}	100	V
Forward continuous current	I_{FM}	300	mA
Average rectified current sin half wave rectification with resistive load $f \geq 50$ Hz	$I_{F(AV)}$	150 ¹⁾	mA
Surge forward current $t < 1$ s and $T_j = 25^{\circ}\text{C}$	I_{FSM}	500	mA
Power dissipation	P_{tot}	400 ¹⁾	mW
Typical Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	375 ¹⁾	K/W
Junction temperature	T_j	175	$^{\circ}\text{C}$
Storage temperature	T_S	- 65 to + 175	$^{\circ}\text{C}$

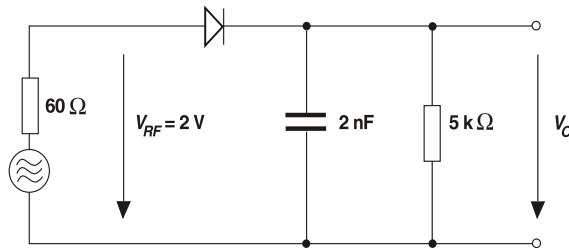
1) Valid provided that electrodes are kept at ambient temperature.



Electrical Characteristics $T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Min	Max	Unit
Forward voltage	$I_F = 10\text{ mA}$ V_F		1.0	V
Leakage current	$V_R = 20\text{ V}$ I_R		25	nA
	$V_R = 75\text{ V}$		5.0	uA
	$V_R = 20\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$		50	uA
Capacitance	$V_F = V_R = 0\text{ V}$ C_{tot}		4	pF
Voltage rise when switching ON	tested with 50 mA pulses, $t_p = 0.1\text{ }\mu\text{s}$, rise time < 30 ns, $f_p = (5\text{ to }100)\text{ kHz}$ V_{fr}		2.5	V
Reverse recovery time	$I_F = 10\text{ mA}$ to $I_R = 1\text{ mA}$, $V_R = 6\text{ V}, R_L = 100\text{ }\Omega$ t_{rr}		4	ns
Rectification efficiency	$f = 100\text{ MHz}, V_{RF} = 2\text{ V}$ η_r	45		%

Rectification Efficiency Measurement Circuit



Typical Characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Figure 1. Forward Characteristics

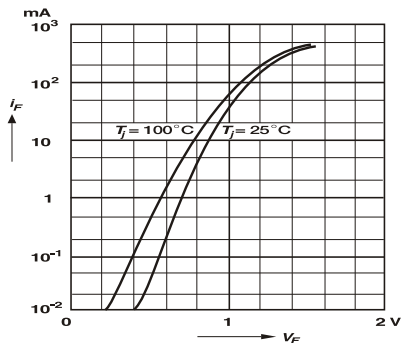


Figure 2. Dynamic Forward Resistance vs. Forward Current

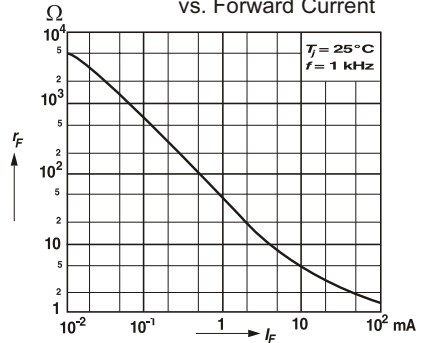




Figure 3. Admissible Power Dissipation vs. Ambient Temperature

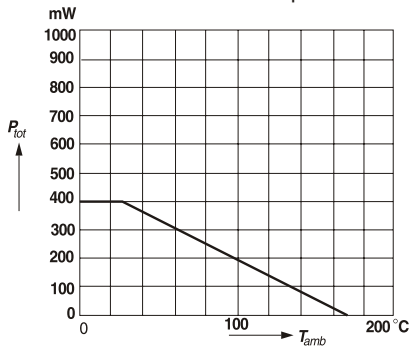


Figure 4. Relative Capacitance vs. Reverse Voltage

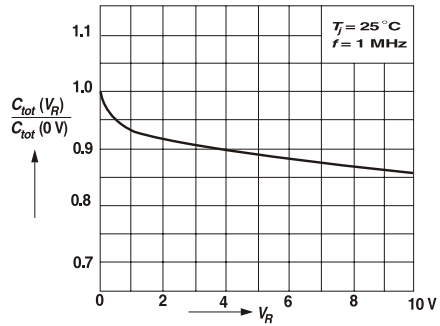


Figure 5. Leakage Current vs. Junction Temperature

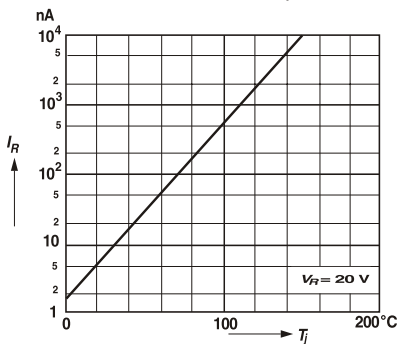
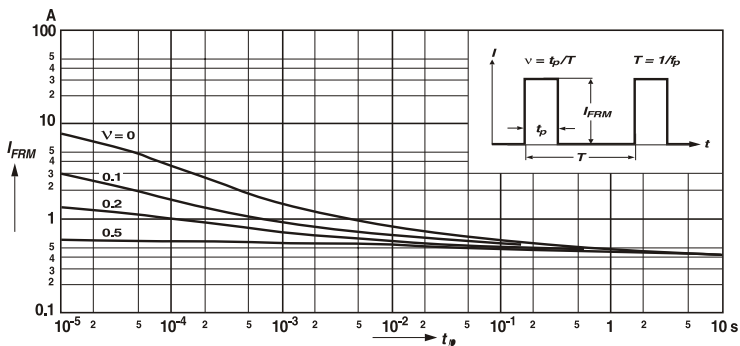


Figure 6. Admissible Repetitive Peak Forward Current vs. Pulse Duration





Device outlook

Front side



Back side





Suggested thermal profiles for soldering processes

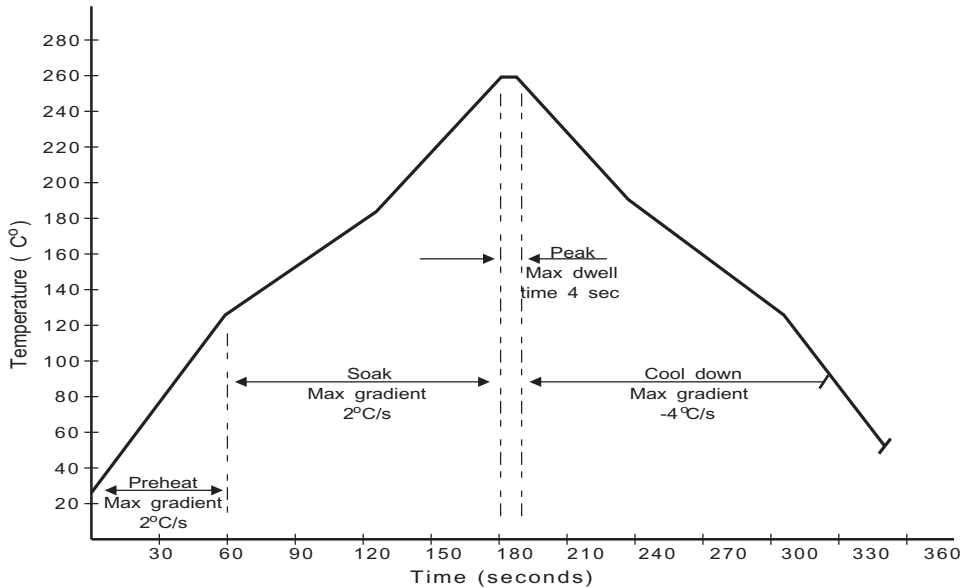


Fig.1 Typical Wave Soldering Thermal Profile

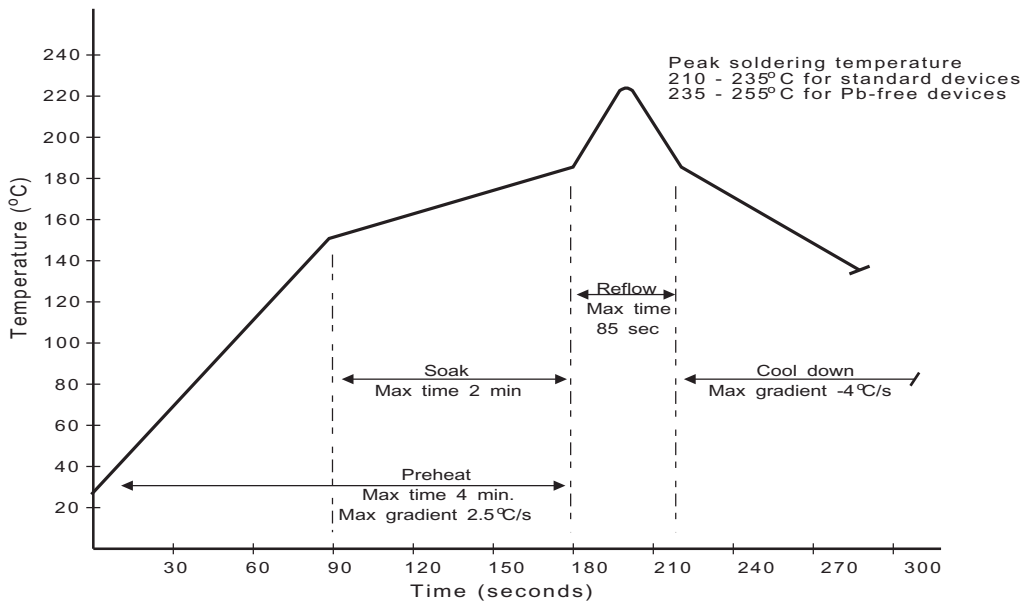


Fig.2 Typical IR Reflow Soldering Thermal Profile