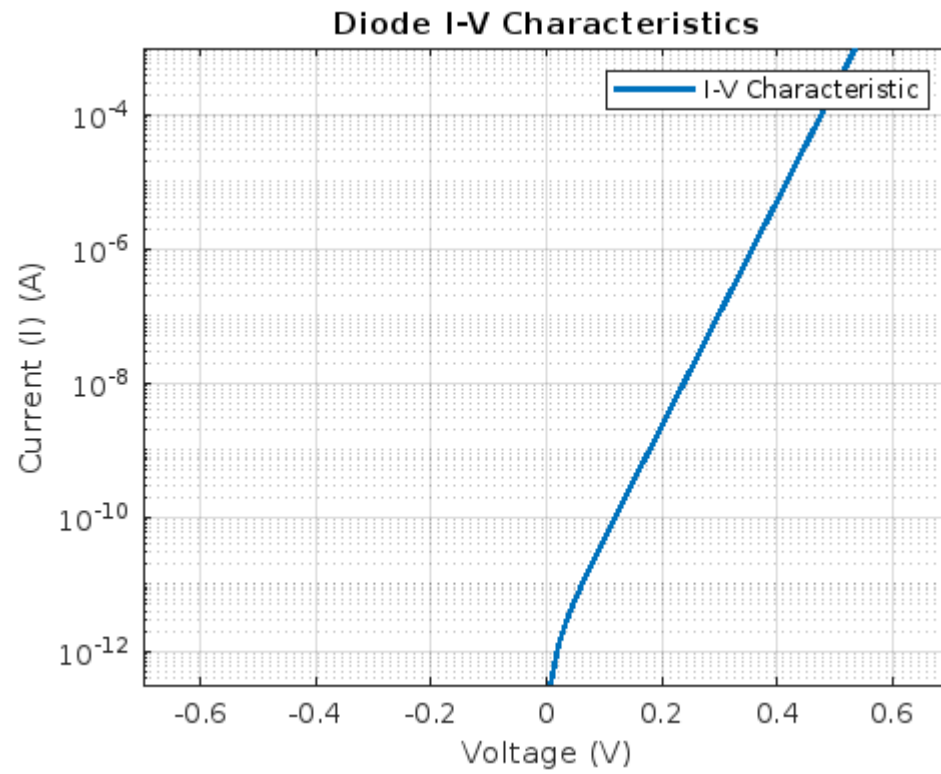

```
I_s = 1e-12;           % Saturation current (A)
T = 300;               % Temperature (K)
k = 1.38e-23;          % Boltzmann constant (J/K)
q = 1.6e-19;           % Charge of an electron (C)
V_T = (k * T) / q;     % Thermal voltage (V)

V = linspace(-0.7, 0.7, 100);

I = I_s * (exp(V / V_T) - 1);

% Plotting
figure;
plot(V, I, 'LineWidth', 2);
grid on;
xlabel('Voltage (V)');
ylabel('Current (I) (A)');
title('Diode I-V Characteristics');
xlim([-0.7 0.7]);
ylim([-1e-12 1e-3]);
set(gca, 'YScale', 'log'); % Log scale for current
legend('I-V Characteristic');
```



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