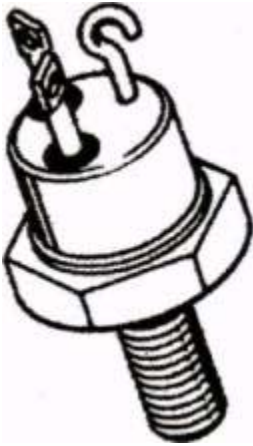


Data sheet 2N5005



2N5005 Applications.

- High-speed power-switching
- Power Transistor
- NPN silicon transistor

Features of 2n5005

- Hermetically sealed TO-59 metal can
- Reference document: MIL-PRF-19500/534
- Also available in chip configuration

2N5005 Benefits

- Qualification Levels: JAN, JANTX, and JANTXV
- Radiation testing available for 2N5005

Absolute Maximum Ratings Tc = 25°C unless otherwise specified for 2N5005

Parameter Symbol Rating Unit 2N5005

Collector-Emitter Voltage VCEO 80 Volts

Collector-Base Voltage VCBO 100 Volts

Emitter-Base Voltage VEBO 5.5 Volts

Collector Current, Continuous Ic 5 A

Power Dissipation, TA = 25°C

Derate linearly above 25°C PT 2 11.4 W mW/°C

Power Dissipation, Tc = 25°C

Derate linearly above 25°C PT 58 331 WmW/°C

Thermal Resistance RejARBJC 88 3 °c/w

Operating Junction Temperature Tj -65 to +200 °c

Storage Temperature TSTG -65 to +200 °c

2N5005 Off Characteristics

Parameter Symbol Test Conditions Min Typ Max Units

Emitter-Base Cutoff Current IEBOIItBO2 VEB = 4 Volts VEB = 5.5 Volts 1 1 mA

Thermal Impedance QIC 10 °C/W

Collector-Emitter Breakdown Voltage V(BR)CEO Ic= 100mA 80 Volts

Collector-Emitter Cutoff Current ICEO VCE = 40 Volts 50 uA

Collector-Emitter Cutoff Current I_{CEX} $V_{CE} = 60$ Volts, $V_{EB} = 2$ Volts, $T_A = 150^\circ\text{C}$ 500 mA

Collector-Emitter Cutoff Current $I_{CKSIICES2}$ $V_{CE} = 60$ Volts $V_{CE} = 100$ Volts 1.1 μA mA

Switching Characteristics 2N5005

Saturated Turn-On Time t_{ON} 0.5

Rise Time t_r $I_c = 5$ A, $I_{f1} = I_{B2} = 500$ mA, 1.4

Fall Time t_f $V_{BE} = 3.7$ Volts, $R_L = 6 \Omega$ 0.5 μs

Saturated Turn-Off Time t_{OFF} 1.5

On Characteristics 2N5055

Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

Parameter Symbol Test Conditions Min Typ Max Units

h_{FE1} $I_c = 50$ mA, $V_{CE} = 5$ Volts 50

h_{FE2} $I_c = 2.5$ A, $V_{CE} = 5$ Volts 70 200

DC Current Gain h_{FE3} $I_c = 5$ A, $V_{CE} = 5$ Volts 40

h_{FE4} $I_c = 2.5$ A, $V_{CE} = 5$ Volts 25

$T_A = -55^\circ\text{C}$

Base-Emitter Voltage V_{BE} $V_{CE} = 5$ Volts, $I_c = 2.5$ A 1.45 Volts

Base-Emitter Saturation Voltage V_{fEsat1} V_{BEsat2} $I_c = 2.5$ A, $I_B = 250$ mA $I_c = 5$ A, $I_B = 500$ mA 1.45 2.20 Volts

Collector-Emitter Saturation Voltage V_{cEsat1} V_{cEsat2} $I_c = 2.5$ A, $I_B = 250$ mA $I_c = 5$ A, $I_B = 500$ mA 0.75 1.50 Volts

Small Signal Characteristics 2N5055

Parameter Symbol Test Conditions Min Typ Max Units

Magnitude — Common Emitter, Short $V_{CE} = 5$ Volts, $I_c = 500$ mA,

Circuit Forward Current Transfer Ratio $|h_{FE}|$ $f = 10\text{MHz}$ 7

Small Signal Short Circuit Forward h_{FE} $V_{CE} = 5$ Volts, $I_c = 100\text{mA}$, 50

Current Transfer Ratio $f = 1$ kHz

Open Circuit Output Capacitance C_{OBO} $V_{CB} = 10$ Volts, $I_E = 0\text{mA}$, $100\text{kHz} < f < 1$ MHz 250 PF

For Data Sheet click here: [2N5005](#)