



Silicon Power Transistor 2N3055

Technical Data

Typical Applications : These devices are designed for general purpose switching and amplifier applications.

Specification Features :

- ☞ **Complementary** NPN Silicon Power Transistor
- ☞ 15 Amp / 60 V device in TO-204AA [TO-3] package
- ☞ 115 Watts device
- ☞ Excellent safe operating area

Symbol	Parameters / Conditions	Ratings
Maximum Ratings :		
V_{CEO}	Collector- Emitter Voltage	60 Vdc
V_{CER}	Collector- Emitter Voltage	70 Vdc
V_{CB}	Collector - Base Voltage	100 Vdc
V_{EB}	Emitter Base Voltage	7 Vdc
I_C	Collector Current – Continuous	15 Adc
I_B	Base Current	7 Adc



Thermal Characteristics :		
R_{thjc}	Thermal resistance junction to case	1.52 °C/W
P_D	Total Power Dissipation @ $T_c = 25\text{ °C}$ Derate above 25 °C	115 Watta 0.657 W/°C
T_j & T_{stg}	Operating and Storage Junction Temperature Range	-65 °C+ 200 °C

ELECTRICAL CHARACTERISTICS :

[$T_c = 25\text{ °C}$ unless otherwise noted]

Characteristic	Symbol	Min	Typ	Max	Unit
Off Characteristics : [Pulse Test : Pulse width = 300 μs , Duty Cycle 2 %]					
Collector – Emitter Sustaining Voltage [$I_c = 200\text{ mAdc}$, $I_B = 0$]	$V_{CEX(sus)}$	60			Vdc
Collector – Emitter Sustaining Voltage [$I_c = 200\text{ mAdc}$, $R_{BE} = 100\text{ Ohms}$]	$V_{CER(sus)}$	70			Vdc
Collector Cutoff Current [$V_{CE} = 30\text{ Vdc}$, $I_B = 0$]	I_{CEO}			0.7	mAdc
Collector Cutoff Current [$V_{CE} = 100\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$] [$V_{CE} = 100\text{ V}$, $V_{BE(off)} = 1.5\text{ Vdc}$, $T_c = 150\text{ °C}$]	I_{CEX}			1 5	mAdc
Emitter Base Leakage [$V_{EB} = 7\text{ Vdc}$, $I_c = 0$]	I_{EBO}			5	mAdc
On Characteristics : [Pulse Test : Pulse width = 300 μs , Duty Cycle 2 %]					
DC Current Gain [$I_c = 4\text{ Adc}$, $V_{CE} = 4\text{ Vdc}$] [$I_c = 10\text{ Adc}$, $V_{CE} = 4\text{ Vdc}$]	h_{FE}	20 5		70	
Collector-Emitter Saturation Voltage [$I_c = 4\text{ Adc}$, $I_B = 400\text{ mAdc}$] [$I_c = 10\text{ Adc}$, $I_B = 3.3\text{ Adc}$]	$V_{CE(sat)}$			1.1 3	Vdc
Base-Emitter on Voltage [$I_c = 4\text{ Adc}$, $V_{CE} = 4\text{ Vdc}$]	$V_{BE(on)}$			1.5	Vdc

Dynamic Characteristics :

Current Gain – Bandwidth Product [$I_C = 0.5 \text{ Adc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1 \text{ MHz}$]	f_T	2.5			MHz
Small signal current gain [$I_C = 1 \text{ Adc}$, $V_{CE} = 4 \text{ Vdc}$, $f = 1 \text{ KHz}$]	h_{fe}	15		120	
Small signal current gain cutoff frequency [$I_C = 1 \text{ Adc}$, $V_{CE} = 4 \text{ Vdc}$, $f = 1 \text{ KHz}$]	f_{hfe}	10			KHz

Second Breakdown Characteristics :

Second Breakdown Collector Current with Base Forward Biased $t = 1 \text{ s}$ [non-repetitive] , $V_{CE} = 40 \text{ Vdc}$	$I_{S/b}$	2.87			Adc
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