

2N3055

File Number 1699

# General-Purpose Power Transistor

Broadly Applicable Devices for Industrial and Commercial Use

**Features:**

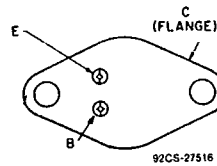
- High gain at high current
- Low Saturation Voltage:  $V_{CE(sat)} < 1.1 \text{ V}$ , @  $I_C=4 \text{ A}$ ,  $I_B=0.4 \text{ A}$
- Excellent safe operating area

The RCA-2N3055 silicon n-p-n transistor intended for a wide variety of medium-voltage, high-current applications.

Typical applications for this transistor include power-switching circuits, audio amplifiers, series and shunt regulator driver and output stages, dc-to-dc converters, inverters, and solenoid (hammer) relay driver service.

This device employs the popular JEDEC TO-204AA/TO-3 package.

**TERMINAL DESIGNATIONS**



JEDEC TO-204AA/TO-3

**MAXIMUM RATINGS, Absolute-Maximum Values:**

*COLLECTOR-TO-BASE VOLTAGE, $V_{CBO}$ .....	100 V
*COLLECTOR-EMITTER SUSTAINING VOLTAGE, $V_{CER(SUS)}$ ( $R_{BE}=100 \Omega$ ).....	70 V
*COLLECTOR-EMITTER SUSTAINING VOLTAGE, $V_{CEO(SUS)}$ .....	60 V
*EMITTER-BASE VOLTAGE, $V_{EBO}$ .....	7 V
*COLLECTOR CURRENT, $I_C$ .....	15 A
*BASE CURRENT, $I_B$ .....	7 A
*COLLECTOR POWER DISSIPATION, $P_C$ .....	115 W
( $T_C=25^\circ \text{C}$ )	
Derate Linearly above $25^\circ \text{C}$ .....	0.66 W/ $^\circ \text{C}$
*JUNCTION TEMPERATURE, $T_J$ .....	$200^\circ \text{C}$
*STORAGE TEMPERATURE, $T_{10}$ .....	$-65 \sim 200^\circ \text{C}$

\*In accordance with JEDEC registration data.

2N3055

ELECTRICAL CHARACTERISTICS, At Case Temperature ( $T_c$ ) = 25°C Unless Otherwise Specified

CHARACTERISTIC	TEST CONDITIONS						LIMITS			UNITS
	VOLTAGE V dc			CURRENT A dc			Min.	Typ.	Max.	
	$V_{CE}$	$V_{EB}$	$V_{BE}$	$I_C$	$I_E$	$I_B$				
$I_{CEX}$	100		-1.5				—	—	5	mA
$I_{CEX}, T_c=150^\circ C$	100		-1.5				—	—	30	
$I_{CEO}$	30					0	—	—	0.7	
$I_{EBO}$		7		0			—	—	5	
$V_{CER(sus)}^{**}$ $R_{BE}=100 \Omega$				0.2			70	—	—	V
$V_{CEO(sus)}^{**}$				0.2	0		60	—	—	V
$h_{FE}$	4			4			20	—	70	
	4			10			5	—	—	
$V_{BE}$	4			4			—	—	1.8	V
$V_{CE(sat)}$				4	0.4		—	—	1.1	
				10	3.3		—	—	8	
$f_{htc}, f=10 \text{ kHz}$	4			1			20	—	—	
$ h_{fd} , f=1 \text{ MHz}$	4			1			0.8	—	—	
$I_{s,b}, t=1 \text{ s}$ (non-repetitive)	60						1.95	—	—	A

\*In accordance with JEDEC registration data.

\*\*The sustaining voltages  $V_{CER(sus)}$  and  $V_{CEO(sus)}$  MUST NOT be measured on a curve tracer.

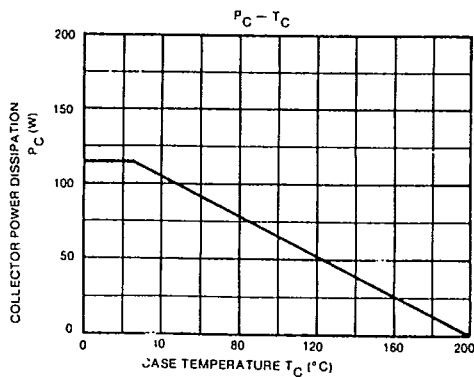


Fig. 1 - Power dissipation vs. temperature derating curve for 2N3055.

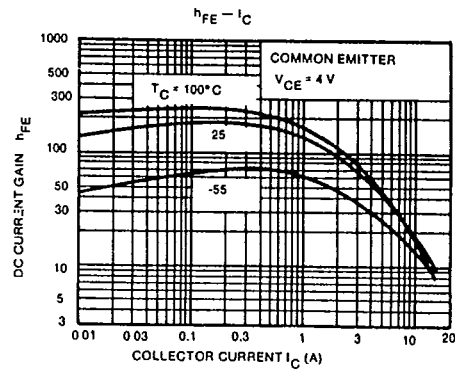


Fig. 2 - Typical dc-beta characteristics for 2N3055.

2N3055

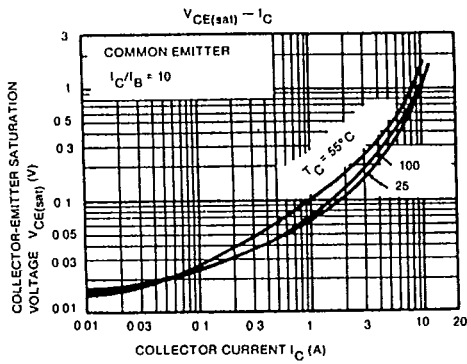


Fig. 3 - Typical collector-to-emitter saturation voltage characteristics for type 2N3055.

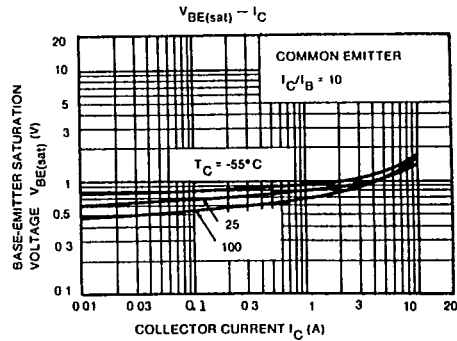


Fig. 4 - Typical base-to-emitter saturation voltage as a function of collector current for type 2N3055.

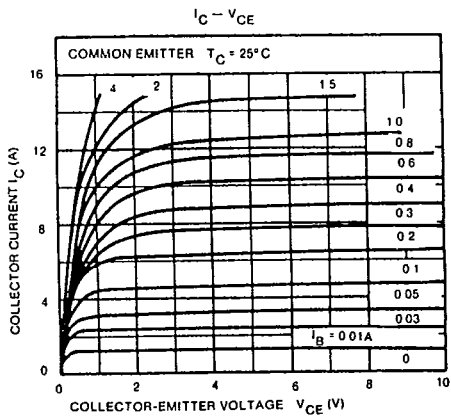


Fig. 5 - Typical output characteristics for 2N3055.

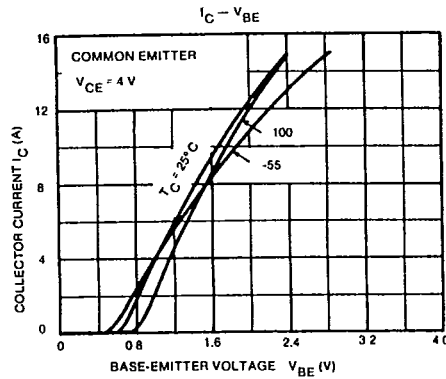


Fig. 6 - Typical transfer characteristics for 2N3055.