

20 STERN AVE.
 SPRINGFIELD, NEW JERSEY 07081
 U.S.A.

TELEPHONE: (201) 376-2922
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2N6098-2N6103, RCA3055 High-Current, Silicon N-P-N VERSAWATT Transistors

Designed for Medium-Power Linear and Switching Service
 in Consumer, Automotive, and Industrial Applications

These RCA types are homotaxial-base silicon n-p-n transistors. Types 2N6098, 2N6100, and 2N6102 have formed emitter and base leads for easy insertion into TO-66 sockets. Types 2N6099, 2N6101, and 2N6103 are electrically identical to the 2N6098, 2N6100, and 2N6102, respectively.

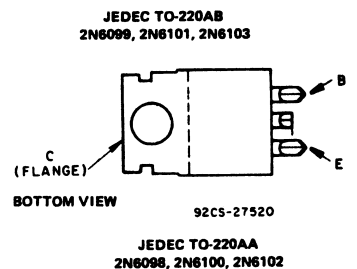
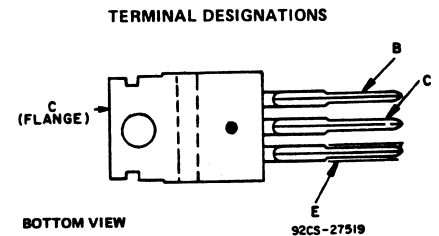
These new VERSAWATT package transistors differ in voltage ratings and in the currents at which the parameters are controlled. They are intended for a wide

variety of medium-power switching and linear applications, such as series and shunt regulators, solenoid drivers, motor-speed controls, inverters, and driver and output stages of high-fidelity amplifiers.

OPTIONAL LEAD CONFIGURATION
 An additional lead forming for printed-circuit board mounting is also available. Please submit requirements to your RCA Technical Sales Representative, or write to RCA Power Marketing, Somerville, N. J. 08876.

Features:

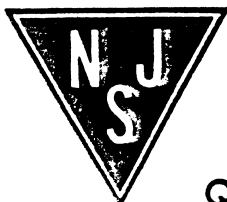
- Low saturation voltage –
 $V_{CE(sat)} = 1\text{ V max. at } I_C = 4\text{ A}$
 (2N6098, 2N6099)
 $= 1\text{ V max. at } I_C = 5\text{ A}$
 (2N6100, 2N6101)
 $= 1\text{ V max. at } I_C = 8\text{ A}$
 (2N6102, 2N6103)
- VERSAWATT package (molded-silicone plastic)
- Maximum safe-area-of-operation curves
- Thermal-cycle rating curve



MAXIMUM RATINGS, Absolute-Maximum Values:

	2N6102 2N6103	2N6098 2N6099	2N6100 2N6101	RCA3055		
*COLLECTOR-TO-BASE VOLTAGE	VCBO	45	70	80	100	V
COLLECTOR-TO-EMITTER SUSTAINING VOLTAGE:						
With external base-to-emitter resistance (R _{BE}) = 100Ω	V _{CEr(sus)}	45	65	75	70	V
With base open	V _{CEO(sus)}	40	60	70	60	V
With base reverse-biased V _{BE} = -1.5 V	V _{CEV(sus)}	—	—	—	90	V
*EMITTER-TO-BASE VOLTAGE	VEBO	5	8	8	7	V
*COLLECTOR CURRENT (Continuous)	I _C	16	10	10	15	A
*BASE CURRENT	I _B	4	4	4	4	A
TRANSISTOR DISSIPATION:	P _T					
At case temperatures up to 25°C		75	75	75	75	W
At ambient temperatures up to 25°C		1.8	1.8	1.8	1.8	W
At case temperatures above 25°C, derate linearly		0.6				W/°C
At ambient temperatures above 25°C, derate linearly		0.0144				W/°C
*TEMPERATURE RANGE:						
Storage & Operating (Junction)		-65 to 150				°C
*LEAD TEMPERATURE (During Soldering):						
At distance ≥ 1.8 in. (3.17 mm) from case of 10 s max.		235				°C

* 2N-Series types in accordance with JEDEC registration data format JS-6 RDF-2.



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ELECTRICAL CHARACTERISTICS, Case Temperature (T_C) = 25°C Unless Otherwise Specified

CHARACTERISTIC SYMBOL	TEST CONDITIONS				LIMITS								UNITS
	VOLTAGE V dc		CURRENT A dc		2N6102 2N6103		2N6098 2N6099		2N6100 2N6101		RCA3055		
	V _{CE}	V _{EB}	I _C	I _B	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
I _{CEX}	40	1.5			—	2	—	—	—	—	—	—	mA
	65	1.5			—	—	—	2	—	—	—	—	
	75	1.5			—	—	—	—	—	2	—	—	
	100	1.5			—	—	—	—	—	—	—	5	
I _{CEX} (T _C = 150°C)	40	1.5			—	10	—	—	—	—	—	—	mA
	65	1.5			—	—	—	10	—	—	—	—	
	75	1.5			—	—	—	—	—	10	—	—	
	100	1.5			—	—	—	—	—	—	—	30	
I _{CEO}	30			0	—	2	—	—	—	—	—	0.7	mA
	50			0	—	—	—	2	—	—	—	—	
	60			0	—	—	—	—	—	2	—	—	
I _{EBO}		5	0		—	1	—	—	—	—	—	—	mA
		7	0		—	—	—	—	—	—	—	5	
		8	0		—	—	—	1	—	1	—	—	
V _{CE} (sus) R _{BE} = 100Ω*			0.2		45	—	65	—	75	—	70	—	V
V _{CEO} (sus)*			0.2	0	40	—	60	—	70	—	60	—	
V _{CEV} (sus)*		1.5	0.1		—	—	—	—	—	—	90	—	
h _{FE} *	4		4		—	—	20	80	—	—	20	70	V
	4		5		—	—	—	—	20	80	—	—	
	4		8		15	60	—	—	—	—	—	—	
	4		10		—	—	5	—	5	—	5	—	
	4		16		5	—	—	—	—	—	—	—	
V _{BE} *	4		4		—	—	—	1.7	—	—	—	1.8	V
	4		5		—	—	—	—	—	1.7	—	—	
	4		8		—	1.7	—	—	—	—	—	—	
V _{CE} (sat)*			4	0.4	—	—	—	—	—	—	—	1.1	V
			10	2	—	—	—	2.5	—	2.5	—	—	
			16	3.2	—	2.5	—	—	—	—	—	—	
I _S /b ^b (t ≥ 1 s)	60				—	—	—	—	—	—	1.2	—	A
f _{hfe}	4		1		—	—	—	—	—	—	10	—	kHz
h _{fe}	4	f=1 kHz	0.5		15	—	15	—	15	—	15	120	
h _{fe}	4	f=0.1 MHz	0.5		8	28	8	28	8	28	2	—	
R _{θJC} R _{θJA}					—	1.67	—	1.67	—	1.67	—	1.67	°C/W
					—	70	—	70	—	70	—	70	

*2N-series types in accordance with JEDEC registration data format (JS-6, RDF-2)

^bPulsed, pulse duration = 300 μs, duty factor = 0.018