DIGITRON Semiconductors

High-reliability discrete products
and engineering services since 1977

2N6053-2N6054 – PNP
2N6055-2N6056 – NPN

COMPLEMENTARY SILICON POWER TRANSISTORS

FEATURES:

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number
- Available Non-RoHS (standard) or RoHS compliant (add PBF suffix)

MAXIMUM RATINGS

Ratings	Symbol	2N6053 2N6055	2N6054 2N6056	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	V
Collector-Base Voltage	V_{CBO}	60	80	V
Emitter-Base Voltage	V_{EBO}	5		V
Collector Current -Continuous Peak	I_C	8.0 16		A
Base Current	I_B	120		mA
Total Power Dissipation **Derate above 25°C**	P_D	100 0.571		W W/°C
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +200		°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.75		°C/W

ELECTRICAL CHARACTERISTICS @ 25°C unless otherwise noted

Characteristics		Symbol	Min	Max	Unit
Collector Emitter Sustaining Voltage I_C = 100mA, I_B = 0	2N6053, 2N6055 2N6054, 2N6056	$V_{CEO(sus)}$	60 80	- -	V
Collector Cutoff Current V_{CE} = 30V, I_B = 0 V_{CE} = 40V, I_B = 0	2N6053, 2N6055 2N6054, 2N6056	I_{CEO}	- -	0.5 0.5	mA
Collector Cutoff Current V_{CE} = 60V, $V_{BE(off)}$ = 1.5V V_{CE} = 80V, $V_{BE(off)}$ = 1.5V V_{CE} = 60V, $V_{BE(off)}$ = 1.5V, T_C = 150°C V_{CE} = 80V, $V_{BE(off)}$ = 1.5V, T_C = 150°C	 2N6053, 2N6055 2N6054, 2N6056 2N6053, 2N6055 2N6054, 2N6056	I_{CEX}	 - - - -	 0.5 0.5 5.0 5.0	mA
Emitter Cutoff Current V_{EB} = 5.0V, I_C = 0		I_{EBO}	-	2.0	mA
DC Current Gain(1) I_C = 4A, V_{CE} = 3V I_C = 4A, V_{CE} = 3V		h_{FE}	750 100	18000 -	-
Collector-Emitter Saturation Voltage(1) I_C = 4.0A, I_B = 16A I_C = 8.0A, I_B = 80mA		$V_{CE(sat)}$	- -	2.0 3.0	V
Base-Emitter On- Voltage I_C = 4A, V_{CE} = 3.0A		$V_{BE(ON)}$	-	2.8	V

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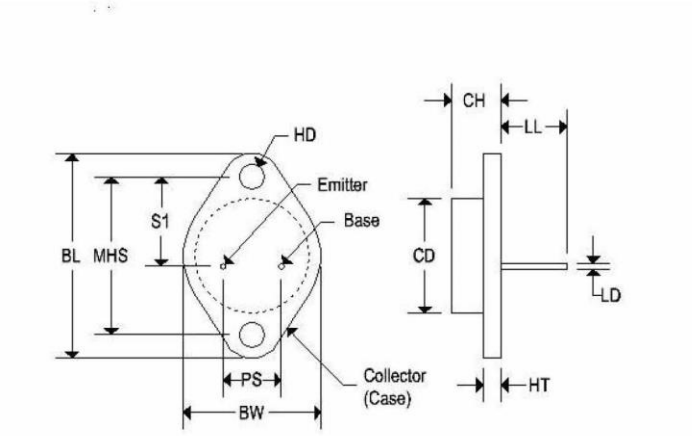
Characteristics		Symbol	Min	Max	Unit
Base-Emitter Saturation Voltage I_C = 8.0A, I_B = 80mA		$V_{BE(ON)}$	-	4.0	V
Output Capacitance V_{CB} = 10V, I_E = 0, f = 0.1MHz	2N6053, 2N6055 2N6054, 2N6056	C_{obo}	- -	350 220	pF
Small Signal Current Gain I_C = 3A, V_{CE} = 3.0V, f = 1KHz		h_{fe}	300	-	-

Note 1: Pulse width = 350µs, duty cycle ≤ 0.02

MECHANICAL CHARACTERISTICS

Case	TO-3
Marking	Alpha-numeric
Pin out	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150

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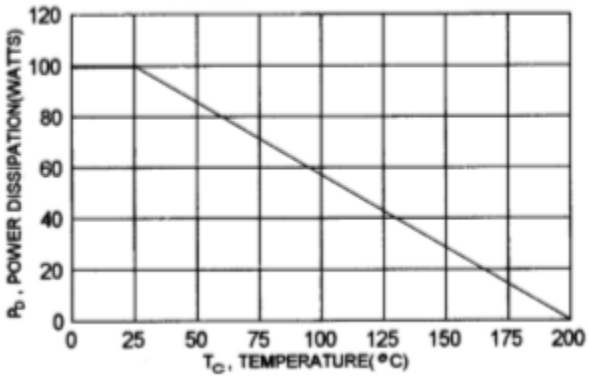
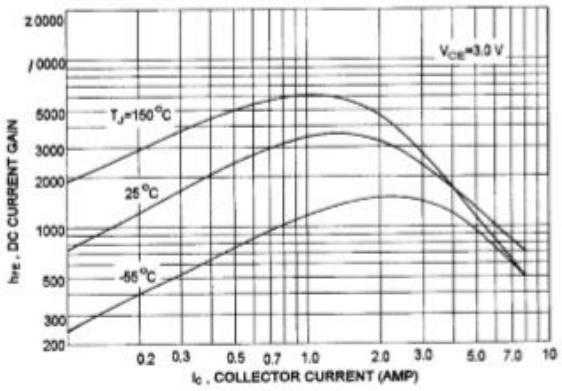
FIGURE -1 POWER DERATING



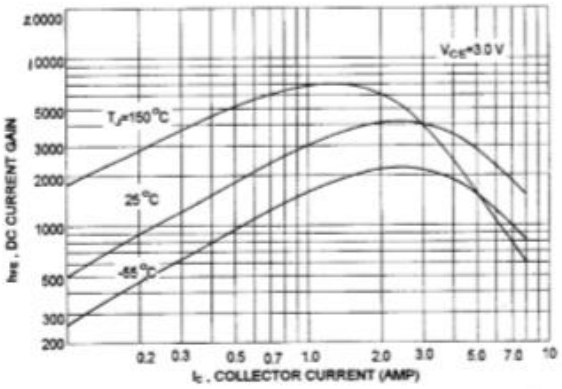
PNP 2N6053,2N6054

DC CURRENT GAIN

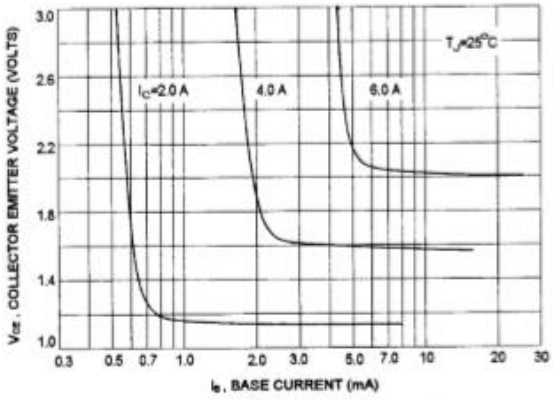


NPN 2N6055,2N6056

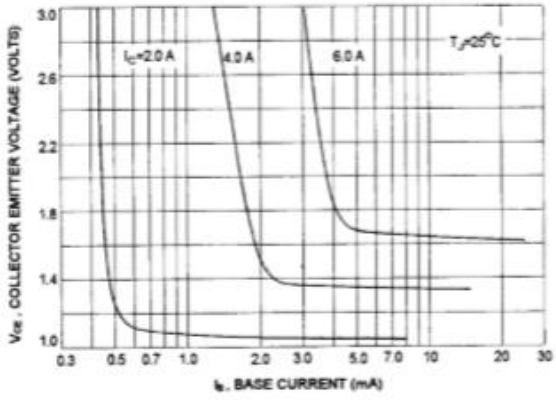
DC CURRENT GAIN



COLLECTOR SATURATION REGION



COLLECTOR SATURATION REGION



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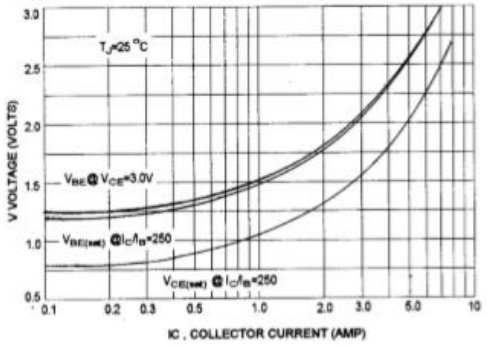
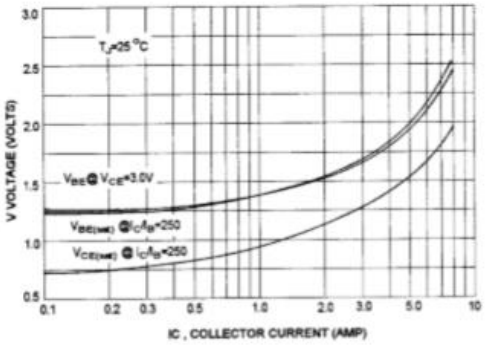
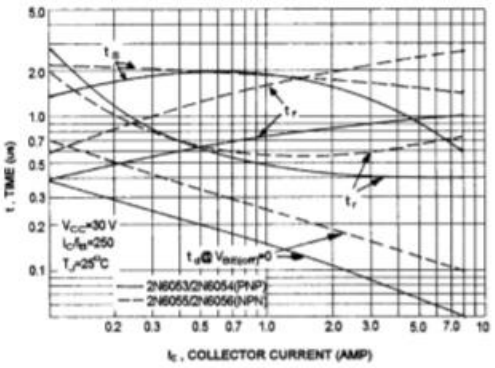
"ON" VOLTAGES



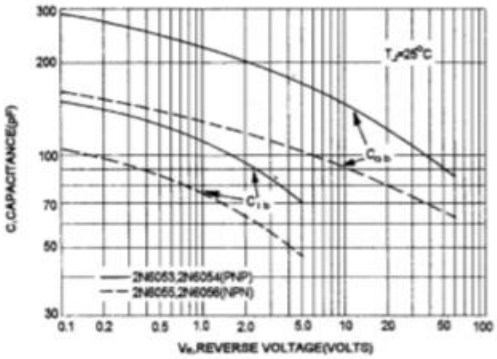
"ON" VOLTAGES



SWITCHING TIME



CAPACITANCES



ACTIVE-REGION SAFE OPERATING AREA (SOA)