DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N3055H, 2N6253, 2N6254, 2N6371

HIGH POWER NPN TRANSISTORS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	2N3055H	2N6253	2N6254	2N6371	Units
Collector-base voltage	V_{CBO}	100	55	100	50	V
Collector-emitter sustaining voltage R_{BE} = 100Ω	$V_{CER(sus)}$	70	55	85	45	V
Collector-emitter sustaining voltage	$V_{CEO(sus)}$	60	45	80	40	V
Collector-emitter sustaining voltage V_{BE} = -1.5V	$V_{CER(sus)}$	90	55	90	50	V
Emitter base voltage	V_{EBO}	7	5	7	5	V
Collector current – continuous	I_C	15				A
Base current	I_B	7.0				A
Total power dissipation $T_C \leq 25°C$	P_D	115	115	150	117	W
Above 25°C		Derate linearly to 200°C				
Operating and storage junction temperature range	T_J, T_{stg}	-65 to +200				°C
Thermal resistance, junction to case	R_{thj-c}	1.090				°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

Characteristic	Symbol	2N3055H		2N6253		2N6254		2N6371		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
Collector cutoff current										
(V_{CE} = 25V, I_B = 0)	I_{CEO}	-	-	-	1.5	-	-	-	1.5	mA
(V_{CE} = 30V, I_B = 0)		-	0.7	-	-	-	-	-	-	
(V_{CE} = 60V, I_B = 0)		-	-	-	-	-	1	-	-	
Collector cutoff current										
(V_{CE} = 40V, $V_{BE(off)}$ = -1.5V)		-	-	-	-	-	-	-	-	
(V_{CE} = 45V, $V_{BE(off)}$ = -1.5V)		-	-	-	-	-	-	-	2	
(V_{CE} = 55V, $V_{BE(off)}$ = -1.5V)		-	-	-	2	-	-	-	-	
(V_{CE} = 100V, $V_{BE(off)}$ = -1.5V)	I_{CEX}	-	5	-	-	-	0.5	-	-	mA
(V_{CE} = 40V, $V_{BE(off)}$ = -1.5V, T_C = 150°C)		-	-	-	-	-	-	-	10	
(V_{CE} = 50V, $V_{BE(off)}$ = -1.5V, T_C = 150°C)		-	-	-	10	-	-	-	-	
(V_{CE} = 100V, $V_{BE(off)}$ = -1.5V, T_C = 150°C)		-	30	-	-	-	5	-	-	
Emitter cutoff current										
(I_C = 0, V_{EB} = 5.0V)	I_{EBO}	-	-	-	10	-	-	-	-	mA
(I_C = 0, V_{EB} = 7.0V)		-	5	-	-	-	0.5	-	-	
Collector-emitter sustaining voltage (I_C = 200mA)	$V_{CEO(sus)}$	60	-	45	-	80	-	40	-	V
Collector-emitter sustaining voltage (I_C = 200mA, R_{BE} = 100Ω)	$V_{CER(sus)}$	70	-	55	-	85	-	45	-	V

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

Characteristic	Symbol	2N3055H		2N6253		2N6254		2N6371		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
Collector-emitter sustaining voltage (I_C = 100mA, V_{BE} = -1.5V)	$V_{CEV(sus)}$	90	-	55	-	90	-	45	-	V
DC current gain										
(I_C = 3A, V_{CE} = 4.0V)		-	-	20	70	-	-	-	-	
(I_C = 4A, V_{CE} = 4.0V)		20	70	-	-	-	-	-	-	
(I_C = 5A, V_{CE} = 2.0V)	h_{FE}	-	-	-	-	20	70	-	-	-
(I_C = 8A, V_{CE} = 4.0V)		-	-	-	-	-	-	15	60	
(I_C = 10A, V_{CE} = 4.0V)		5	-	-	-	-	-	-	-	
(I_C = 15A, V_{CE} = 4.0V)		-	-	3	-	5	-	-	-	
(I_C = 16A, V_{CE} = 4.0V)		-	-	-	-	-	-	4	-	
Base emitter on voltage										
(I_C = 3A, V_{CE} = 4.0V)		-	-	-	1.7	-	-	-	-	
(I_C = 4A, V_{CE} = 4.0V)	$V_{BE(ON)}$	-	1.8	-	-	-	-	-	-	V
(I_C = 5A, V_{CE} = 2.0V)		-	-	-	-	-	1.5	-	-	
(I_C = 8A, V_{CE} = 4.0V)		-	-	-	-	-	-	-	-	
(I_C = 16A, V_{CE} = 4.0V)		-	-	-	-	-	-	-	4	
Collector emitter saturation voltage										
(I_C = 3A, I_B = 0.3A)		-	-	-	1	-	-	-	-	
(I_C = 4A, I_B = 0.4A)		-	1.1	-	-	-	-	-	-	
(I_C = 5A, I_B = 0.5A)		-	-	-	-	-	0.5	-	-	
(I_C = 8A, I_B = 0.8A)	$V_{CE(sat)}$	-	-	-	-	-	-	-	1.5	V
(I_C = 10A, I_B = 3.3A)		-	8	-	-	-	-	-	-	
(I_C = 15A, I_B = 3A)		-	-	-	-	-	4	-	-	
(I_C = 15A, I_B = 5A)		-	-	-	4	-	-	-	-	
(I_C = 316A, I_B = 4A)		-	-	-	-	-	-	-	4	
Small signal current gain (I_C = 1.0A, V_{CE} = 4.0V, f = 1.0kHz)	h_{fe}	15	120	10	-	10	-	10	-	-
Transition frequency (I_C = 1A)	f_T	800	-	-	-	-	-	800	-	kHz
Forward current transfer ratio (V_{CE} = 4V, I_C = 1A, f = 0.4MHz)	$\|h_{fe}\|$	-	-	2	-	2	-	2	-	-
Second breakdown collector current										
(V_{CE} = 39V, t_p = 1s non-repetitive)		-	-	-	-	-	-	-	-	
(V_{CE} = 40V, t_p = 1s non-repetitive)	$I_{s/b}$	2.9	-	-	-	-	-	2.9	-	
(V_{CE} = 45V, t_p = 1s non-repetitive)		-	-	2.55	-	-	-	-	-	
(V_{CE} = 60V, t_p = 1s non-repetitive)		1.95	-	-	-	-	-	-	-	
(V_{CE} = 80V, t_p = 1s non-repetitive)		-	-	-	-	1.87	-	-	-	

Note 1: Pulse test: pulse width ≤ 300µs, duty cycle ≤ 2.0%.

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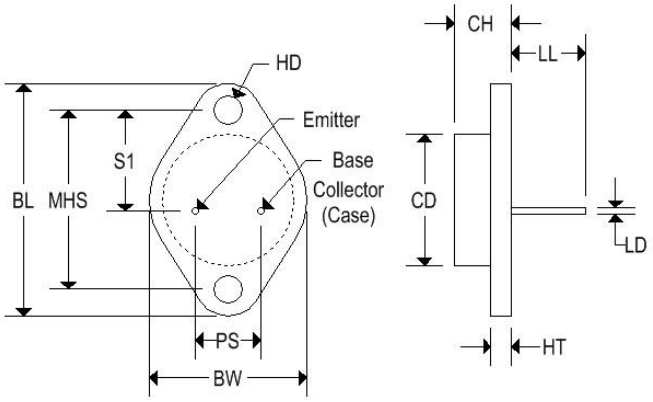
MECHANICAL CHARACTERISTICS

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