

2N6386 2N6387 2N6388

PLASTIC MEDIUM-POWER SILICON TRANSISTORS

... designed for general-purpose amplifier and low-speed switching applications.

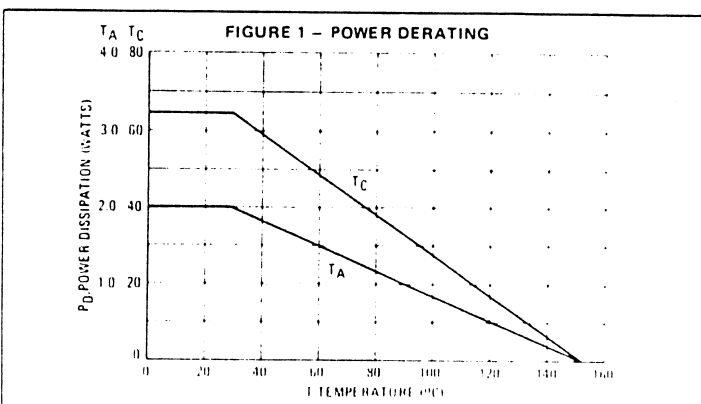
- High DC Current Gain –
 $h_{FE} = 2500$ (Typ) @ $I_C = 4.0$ Adc
- Collector-Emitter Sustaining Voltage – @ 100 mAdc
 $V_{CE(sus)} = 40$ Vdc (Min) – 2N6386
 $= 60$ Vdc (Min) – 2N6387
 $= 80$ Vdc (Min) – 2N6388
- Low Collector-Emitter Saturation Voltage –
 $V_{CE(sat)} = 2.0$ Vdc (Max) @ $I_C = 3.0$ Adc – 2N6386
 $= 2.0$ Vdc (Max) @ $I_C = 5.0$ Adc – 2N6387, 2N6388
- Monolithic Construction with Built-In Base-Emitter Shunt Resistors
- TO-220AB Compact Package
- TO-66 Leadform Also Available

*MAXIMUM RATINGS

Rating	Symbol	2N6386	2N6387	2N6388	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	80	Vdc
Collector-Base Voltage	V_{CB}	40	60	80	Vdc
Emitter-Base Voltage	V_{EB}	5.0			Vdc
Collector Current – Continuous	I_C	8.0	10	10	Adc
Peak		15	15	15	
Base Current	I_B	250			mAdc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	65			Watts
Derate above 25°C		0.52			W/ $^\circ\text{C}$
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	2.0			Watts
Derate above 25°C		0.016			W/ $^\circ\text{C}$
Operating and Storage Junction, Temperature Range	T_J, T_{stg}	-65 to +150			$^\circ\text{C}$

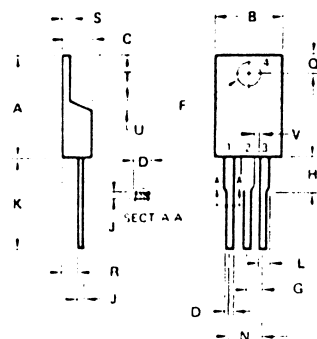
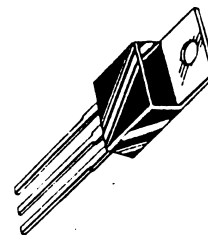
THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.92	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$



DARLINGTON 8 AND 10 AMPERE NPN SILICON POWER TRANSISTORS

40-60-80 VOLTS
65 WATTS



STYLE 1
PIN 1 BASE
2 COLLECTOR
3 EMITTER
4 COLLECTOR

NOTE
1 DIM L & H APPLIES TO ALL LEADS.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	15.11	15.75	0.595	0.620
B	9.65	10.29	0.380	0.405
C	4.06	4.82	0.160	0.190
D	0.64	0.89	0.025	0.035
F	3.61	3.73	0.142	0.147
G	2.41	2.67	0.095	0.105
H	2.79	3.30	0.110	0.130
J	0.36	0.56	0.014	0.022
K	12.70	14.27	0.500	0.562
L	1.14	1.27	0.045	0.050
N	4.83	5.33	0.190	0.210
Q	2.54	3.04	0.100	0.120
R	2.04	2.79	0.080	0.110
S	1.14	1.39	0.045	0.055
T	5.97	6.48	0.235	0.255
U	0.76	1.27	0.030	0.050
V	1.14	1.27	0.045	0.050

CASE 221A 02
TO 220AB

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2N6386 2N6387 2N6388 NPN

*ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) ($I_C = 200 \text{ mAdc}$, $I_B = 0$)	$V_{CE(sus)}$	40 60 80	— — —	Vdc
Collector Cutoff Current ($V_{CE} = 40 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 60 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 80 \text{ Vdc}$, $I_B = 0$)	I_{CEO}	— — —	1.0 1.0 1.0	mAdc
Collector Cutoff Current ($V_{CE} = 40 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$) ($V_{CE} = 60 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$) ($V_{CE} = 80 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$) ($V_{CE} = 40 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 125^\circ\text{C}$) 2N6386 ($V_{CE} = 60 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 125^\circ\text{C}$) 2N6387 ($V_{CE} = 80 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 125^\circ\text{C}$) 2N6388	I_{CEX}	— — — — — —	300 300 300 3.0 3.0 3.0	μAdc mAdc
Emitter Cutoff Current ($V_{BE} = 5.0 \text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	5.0	mAdc
ON CHARACTERISTICS (1)				
DC Current Gain ($I_C = 3.0 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 5.0 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 8.0 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 10 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$)	h_{FE}	1000 1000 100 100	20000 20000 — —	—
Collector-Emitter Saturation Voltage ($I_C = 3.0 \text{ Adc}$, $I_B = 0.006 \text{ Adc}$) ($I_C = 5.0 \text{ Adc}$, $I_B = 0.01 \text{ Adc}$) ($I_C = 8.0 \text{ Adc}$, $I_B = 0.08 \text{ Adc}$) ($I_C = 10 \text{ Adc}$, $I_B = 0.1 \text{ Adc}$)	$V_{CE(sat)}$	— — — —	2.0 2.0 3.0 3.0	Vdc
Base-Emitter On Voltage ($I_C = 3.0 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 5.0 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 8.0 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 10 \text{ Adc}$, $V_{CE} = 3.0 \text{ Vdc}$)	$V_{BE(on)}$	— — — —	2.8 2.8 4.5 4.5	Vdc
DYNAMIC CHARACTERISTICS				
Small-Signal Current Gain ($I_C = 1.0 \text{ Adc}$, $V_{CE} = 5.0 \text{ Vdc}$, $f_{test} = 1.0 \text{ MHz}$)	$ h_{fe} $	20	—	—
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{ob}	—	200	pF
Small-Signal Current Gain ($I_C = 1.0 \text{ Adc}$, $V_{CE} = 5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	h_{fe}	1000	—	—

* Indicates JEDEC Registered Data

(1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

FIGURE 2 — SWITCHING TIMES TEST CIRCUIT

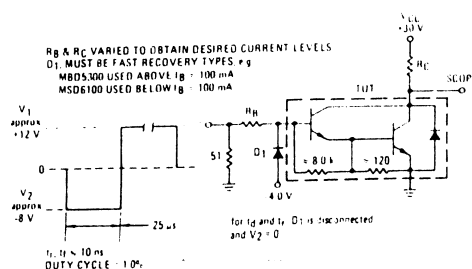
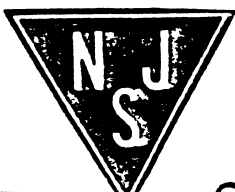
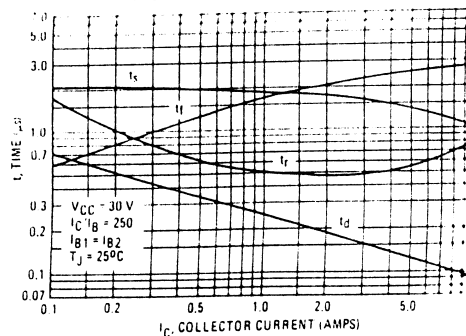


FIGURE 3 — SWITCHING TIMES



Quality Semi-Conductors