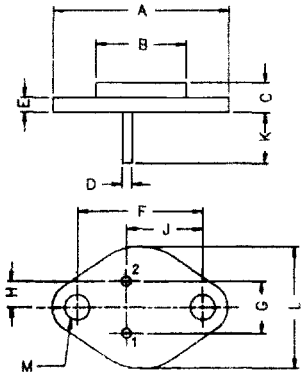
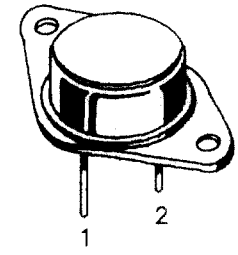
2N5877, 5878 NPN POWER TRANSISTORS

Power Linear and Switching Applications



ALL DIMENSIONS ARE IN M.M.

DIM	MIN	MAX
A	–	39,37
B	–	22,22
C	6,35	8,50
D	0,96	1.09
E	–	1,77
F	29,90	30,4
G	10,69	11,18
H	5,20	5,72
J	16,64	17,15
K	11,15	12,25
L	–	26,67
M	3,84	4,19



PIN CONFIGURATION
1. BASE
2. EMITTER
3. COLLECTOR

ABSOLUTE MAXIMUM RATINGS

			5877	5878	
Collector-base voltage (open emitter)	V_{CBO}	max.	60	80	V
Collector-emitter voltage (open base)	V_{CEO}	max.	60	80	V
Collector current	I_C	max.	10		A
Total power dissipation up to T_C = 25°C	P_{tot}	max.	150		W
Junction temperature	T_j	max.	200		°C
Collector-emitter saturation voltage					
I_C = 5 A; I_B = 0.5 A	V_{CEsat}	max.	1.0		V
D.C. current gain					
I_C = 4 A; V_{CE} = 4 V	h_{FE}	min.	20		
		max.	100		

RATINGS (at T_A=25°C unless otherwise specified)

Limiting values			5877	5878	
Collector-base voltage (open emitter)	V_{CBO}	max.	60	80	V
Collector-emitter voltage (open base)	V_{CEO}	max.	60	80	V
Emitter-base voltage (open collector)	V_{EBO}	max.	5.0		V
Collector current	I_C	max.	10		A
Collector current (peak)	I_{CM}	max.	20		A
Base current	I_B	max.	4.0		A
Total power dissipation up to T_C = 25°C	P_{tot}	max.	150		W

Junction temperature	T_j	max.	200	°C
Storage temperature	T_{stg}		−65 to +200	°C

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	=	1.17	°C/W

CHARACTERISTICS

T_{amb} = 25°C unless otherwise specified

			5877	5878	
Collector cutoff current					
I_E = 0; V_{CB} = 60 V	I_{CBO}	max.	0.5	–	mA
I_E = 0; V_{CB} = 80 V	I_{CBO}	max.	–	0.5	mA
I_B = 0; V_{CE} = 30 V	I_{CEO}	max.	1.0	–	mA
I_B = 0; V_{CE} = 40 V	I_{CEO}	max.	–	1.0	mA
V_{BE} = 1.5 V; V_{CE} = 60 V	I_{CEX}	max.	0.5	–	mA
V_{BE} = 1.5 V; V_{CE} = 80 V	I_{CEX}	max.	–	0.5	mA
V_{BE} = 1.5 V; V_{CE} = 60 V; T_C = 150°C	I_{CEX}	max.	5	–	mA
V_{BE} = 1.5 V; V_{CE} = 80 V; T_C = 150°C	I_{CEX}	max.	–	5	mA
Emitter cut-off current					
I_C = 0; V_{EB} = 5 V	I_{EBO}	max.		1.0	mA
Breakdown voltages					
I_C = 0.2 A; I_B = 0	$V_{CEO(sus)}$*	min.	60	80	V
I_C = 1 mA; I_E = 0	V_{CBO}	min.	60	80	V
I_E = 1 mA; I_C = 0	V_{EBO}	min.		5.0	V
Saturation voltages					
I_C = 5 A; I_B = 0.5 A	V_{CEsat}*	max.		1.0	V
I_C = 10 A; I_B = 2.5 A	V_{CEsat}*	max.		3.0	V
	V_{BEsat}*	max.		2.5	V
Base emitter on voltage					
I_C = 4 A; V_{CE} = 4 V	$V_{BE(on)}$*	max.		1.5	V
D.C. current gain					
I_C = 4 A; V_{CE} = 4 V	h_{FE}*	min.		20	
		max.		100	
I_C = 10 A; V_{CE} = 4 V	h_{FE}*	min.		4.0	
Output capacitance at f = 1.0 MHz					
I_E = 0; V_{CB} = 10V	C_o	max.		300	pF
Transition frequency					
I_C = 0.5A; V_{CE} = 10V	f_T	min.		4.0	MHz
Switching time					
I_C = 4A; V_{CC} = 30V					
I_{B1} = $-I_{B2}$ = 0.4A					
Storage time	t_s	max.		1.0	µs
Fall time	t_f	max.		0.8	µs
Rise time					
I_C = 4A; V_{CC} = 30V; I_{B1} = 0.4A	t_r	max.		0.7	µs

* Pulsed: pulse duration = 300µs; duty cycle = 1.5%