

ALPHANUMERIC INDEX — CROSS-REFERENCE (Continued)

Industry Part Number	Motorola Direct Replacement	Motorola Similar Replacement	Page Number	Industry Part Number	Motorola Direct Replacement	Motorola Similar Replacement	Page Number
MJE202	MJE210	MJE3055	3-904	MJE2801	MJE2801		3-902
MJE2020		TIP41	3-1083	MJE2801K		MJE2801 T	3-902
MJE2021		TIP41A	3-1083	MJE2801T	MJE2801T		3-902
MJE203		MJE3055	3-904	MJE29		TIP29	3-1071
MJE204		MJE3055	3-904	MJE2901	MJE2901		3-902
MJE205		MJE3055	3-904	MJE2901K		MJE2955T	3-904
MJE2050		MJE200	3-866	MJE2901T		MJE2955T	3-904
MJE2055		MJE3055	3-904	MJE2955	MJE2955		3-904
MJE205K		TIP41A	3-1083	MJE2955K		MJE2955T	3-904
MJE2090		TIP125	3-1098	MJE2955T	MJE2955T		3-904
MJE2091		TIP125	3-1098	MJE29A		TIP29A	3-1071
MJE2092		TIP126	3-1098	MJE29B		TIP29B	3-1071
MJE2093		TIP126	3-1098	MJE29C		TIP29C	3-1071
MJE210			3-866	MJE30		TIP30	3-1071
MJE2100		TIP120	3-1098	MJE3055	MJE3055		3-904
MJE2101		TIP120	3-1098	MJE3055K		MJE3055T	3-904
MJE2102		TIP121	3-1098	MJE3055T	MJE3055T		3-904
MJE2103		TIP121	3-1098	MJE30A		TIP30A	3-1071
MJE2150		MJE210	3-866	MJE30B		TIP30B	3-1071
MJE2160		TIP48	3-1087	MJE30C		TIP30C	3-1071
MJE220	MJE2360T	MJE181	3-862	MJE31		TIP31	3-1073
MJE221		MJE181	3-862	MJE31A		TIP31A	3-1073
MJE222		MJE181	3-862	MJE31B		TIP31B	3-1073
MJE223		MJE182	3-862	MJE31C		TIP31C	3-1073
MJE224		MJE182	3-862	MJE32		TIP32	3-1073
MJE225		MJE182	3-862	MJE32A		TIP32A	3-1073
MJE230		MJE171	3-862	MJE32B		TIP32B	3-1073
MJE231		MJE171	3-862	MJE32C		TIP32C	3-1073
MJE232		MJE171	3-862	MJE33		TIP41	3-1083
MJE233		MJE172	3-862	MJE3300		2N6037	3-135
MJE234		MJE172	3-862	MJE3301		2N6038	3-135
MJE235		MJE172	3-862	MJE3302		2N6039	3-135
MJE2360		MJE2360T	3-900	MJE3310		2N6034	3-135
MJE2360T			3-900	MJE3311		2N6035	3-135
MJE2361		MJE2361T	3-900	MJE3312		2N6036	3-135
MJE2361T	MJE2361T		3-900	MJE3370		MJE3370	3-882
MJE2370		TIP32	3-1073	MJE3371		2N5193	3-89
MJE2371		TIP32A	3-1073	MJE33A		TIP41A	3-1083
MJE240	MJE240		3-870	MJE33B		TIP41B	3-1083
MJE241	MJE241		3-870	MJE33C		TIP41C	3-1083
MJE242	MJE243		3-870	MJE34		TIP42	3-1083
MJE243			3-870	MJE340	MJE340		3-876
MJE244	MJE244		3-870	MJE340K		TIP48	3-1087
MJE2480		TIP31	3-1073	MJE341	MJE341		3-878
MJE2481		TIP31A	3-1073	MJE341K		TIP47	3-1087
MJE2482	MJE250	2N6121	3-154	MJE3439			3-908
MJE2483		2N6122	3-154	MJE344	MJE3439		3-878
MJE2490		TIP32	3-1073	MJE3440	MJE3440		3-908
MJE2491		TIP32A	3-1073	MJE344K		TIP47	3-1087
MJE250			3-870	MJE345		MJE3439	3-908
MJE251	MJE251		3-870	MJE34A		TIP42A	3-1083
MJE252			3-870	MJE34B		TIP42B	3-1083
MJE2520		TIP31	3-1073	MJE34C		TIP42C	3-1083
MJE2521		TIP31A	3-1073	MJE350			3-880
MJE2522		TIP31	3-1073	MJE3520		MJE520	3-886
MJE2523	MJE253	TIP31A	3-1073	MJE3521		2N5190	3-85
MJE253			3-870	MJE370	MJE370		3-882
MJE254		MJE253	3-870	MJE370K		TIP32	3-1073
MJE270	MJE270		3-874	MJE371	MJE371		3-884
MJE271	MJE271		3-874	MJE371K		TIP32	3-1073

*Consult Motorola if a direct replacement is necessary.

**PLASTIC NPN SILICON
MEDIUM-POWER TRANSISTORS**

...useful for medium voltage applications requiring high f_T such as converters and extended range amplifiers.

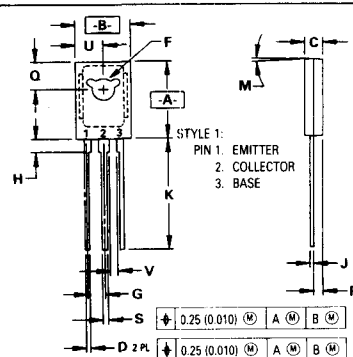
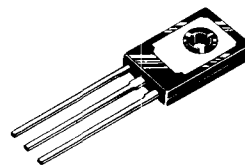
**0.5 AMPERE
POWER TRANSISTORS
NPN SILICON
150-200 VOLTS
20 WATTS**

MAXIMUM RATINGS

Rating	Symbol	MJE341	MJE344	Unit
Collector-Emitter Voltage	V_{CE0}	150	200	Vdc
Collector-Base Voltage	V_{CB}	175	200	Vdc
Emitter-Base Voltage	V_{EB}	3.0	5.0	Vdc
Collector Current — Continuous	I_C	500		mA dc
Base Current	I_B	250		mA dc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	20 0.16		Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	6.25	$^\circ\text{C/W}$

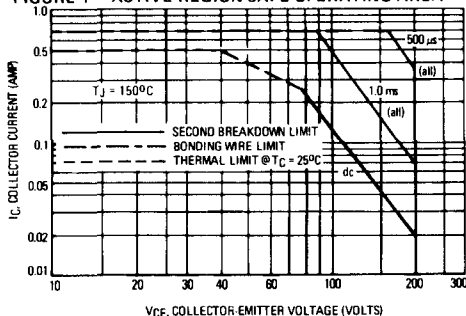


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	MIN	MAX	MIN	MAX
A	10.80	11.04	0.425	0.435
B	7.50	7.74	0.295	0.305
C	2.42	2.66	0.095	0.105
D	0.51	0.66	0.020	0.026
F	2.93	3.17	0.115	0.125
G	2.39 BSC		0.094 BSC	
H	1.27	2.41	0.050	0.095
J	0.39	0.63	0.015	0.025
K	14.61	16.63	0.575	0.655
M	3" TYP		3" TYP	
Q	3.76	4.01	0.148	0.158
R	1.15	1.39	0.045	0.055
S	0.64	0.88	0.025	0.035
U	3.69	3.93	0.145	0.155
V	1.02	—	0.040	—

**CASE 77-06
TO-225AA TYPE**

FIGURE 1 — ACTIVE-REGION SAFE OPERATING AREA



V_{CE} , COLLECTOR-EMITTER VOLTAGE (VOLTS)

There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate I_C - V_{CE} limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 1 is based on $T_J(pk) = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_J(pk) \leq 150^\circ\text{C}$. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

MJE341, MJE344

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage (I _C = 1.0 mAdc, I _B = 0)	MJE341 MJE344	V _{CEO(sus)}	150 200	— —	Vdc
Collector Cutoff Current (V _{CE} = 150 Vdc, I _B = 0) (V _{CE} = 200 Vdc, I _B = 0)	MJE341 MJE344	I _{CEO}	— —	1.0 1.0	mAdc
Collector Cutoff Current (V _{CB} = 175 Vdc, I _E = 0) (V _{CB} = 200 Vdc, I _E = 0)	MJE341 MJE344	I _{CBO}	— —	0.3 0.1	mAdc
Emitter Cutoff Current (V _{EB} = 3.0 Vdc, I _C = 0) (V _{EB} = 5.0 Vdc, I _C = 0)	MJE341 MJE344	I _{EBO}	— —	0.1 0.1	mAdc
ON CHARACTERISTICS					
DC Current Gain (I _C = 10 mAdc, V _{CE} = 10 Vdc) (I _C = 50 mAdc, V _{CE} = 10 Vdc) (I _C = 150 mAdc, V _{CE} = 10 Vdc)	MJE341 MJE341 MJE344 MJE341	h _{FE}	20 25 30 20	— 200 300 —	—
Collector-Emitter Saturation Voltage (I _C = 50 mAdc, I _B = 5.0 mAdc) (I _C = 150 mAdc, I _B = 15 mAdc)	MJE344 MJE341	V _{CE(sat)}	— —	1.0 2.3	Vdc
Base-Emitter On Voltage (I _C = 50 mAdc, V _{CE} = 10 Vdc)		V _{BE(on)}	—	1.0	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain–Bandwidth Product (I _C = 50 mAdc, V _{CE} = 25 Vdc, f = 10 MHz)		f _T	15	—	MHz
Output Capacitance (V _{CB} = 20 Vdc, I _E = 0, f = 100 kHz)		C _{ob}	—	15	pF
Small-Signal Current Gain (I _C = 50 mAdc, V _{CE} = 10 Vdc, f = 1.0 kHz)		h _{fe}	25	—	—

FIGURE 2 – DC CURRENT GAIN

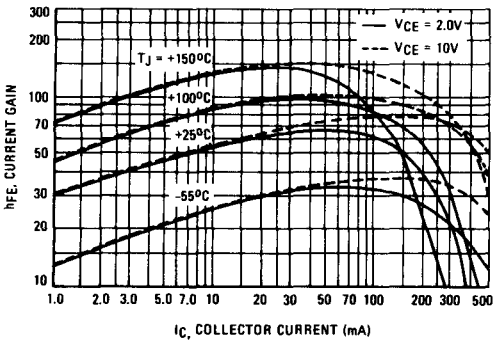


FIGURE 3 – "ON" VOLTAGES

