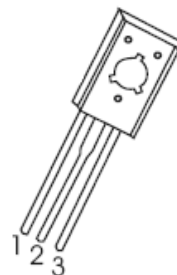


FEATURES

- High current output up to -3A
- Low saturation voltage
- Complement to MJE182

TO-126

1. EMITTER
2. COLLECTOR
3. BASE



GK xxx
MJE172

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Rating ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector-Base Voltage		BV_{CBO}	-100	V
Collector-Emitter Voltage		BV_{CEO}	-80	V
Emitter-Base Voltage		BV_{EBO}	-7	V
Collector Current (DC)		I_C	-3	A
Collector Current (Pulse)		I_{CP}	-6	A
Power Dissipation	$T_A=25^{\circ}\text{C}$	P_C	1.5	W
	$T_C=25^{\circ}\text{C}$		12.5	
Junction Temperature		T_j	150	$^{\circ}\text{C}$
Storage Temperature		T_{stg}	-55~150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS($T_c=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C = -100\mu\text{A}, I_E = 0$	-100			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = -1\text{mA}, I_B = 0$	-80			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = -100\mu\text{A}, I_C = 0$	-7			V
Collector cut-off current	I_{CBO}	$V_{CB} = -100\text{V}, I_B = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$			0.1	μA
DC current gain*	h_{FE}	$V_{CE} = -1\text{V}, I_C = -100\text{mA}$ $V_{CE} = -1\text{V}, I_C = -500\text{mA}$ $V_{CE} = -1\text{V}, I_C = -1.5\text{A}$	50 30 12		250	
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$ $I_C = -1.5\text{A}, I_B = -150\text{mA}$ $I_C = -3\text{A}, I_B = -600\text{mA}$			-0.3 -0.9 -1.7	V
Base-emitter saturation voltage*	$V_{BE(sat)}$	$I_C = -1.5\text{A}, I_B = -150\text{mA}$ $I_C = -3\text{A}, I_B = -600\text{mA}$			-1.5 -2.0	V
Base-emitter on voltage*	$V_{BE(on)}$	$V_{CE} = -1\text{V}, I_C = -500\text{mA}$			-1.2	V
Transition frequency	f_T	$V_{CE} = -10\text{V}, I_B = -100\text{mA}$	50			MHz
Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			50	pF

* Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$ Pulse

RATING AND CHARACTERISTIC CURVES

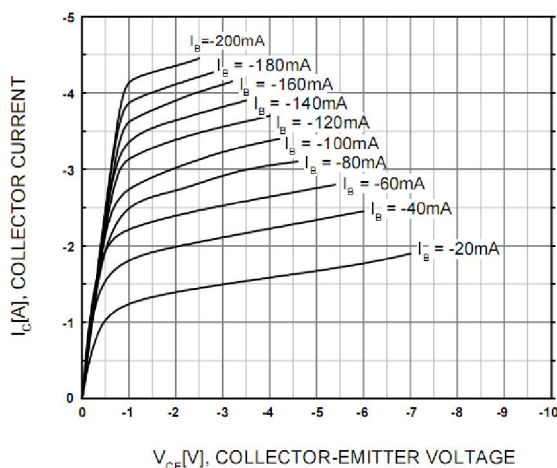


Figure 1. Static Characteristic

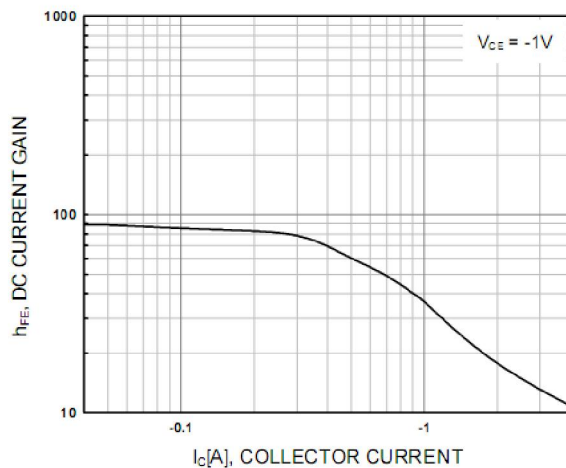


Figure 2. DC current Gain

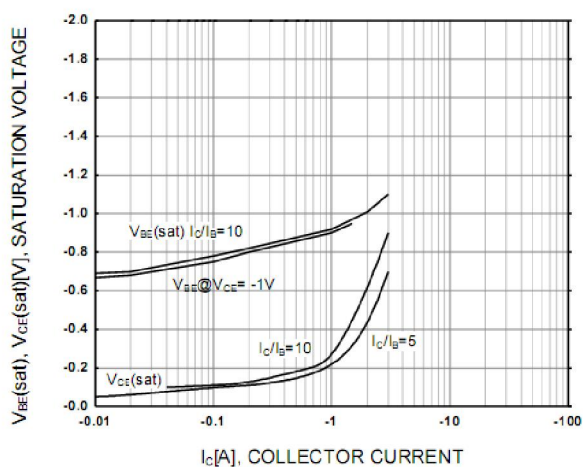


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

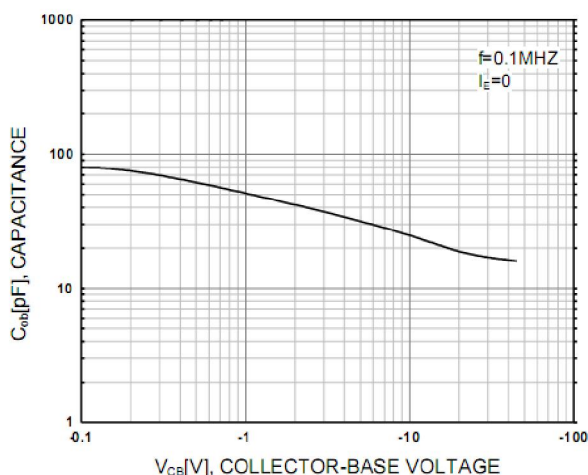


Figure 4. Collector Output Capacitance

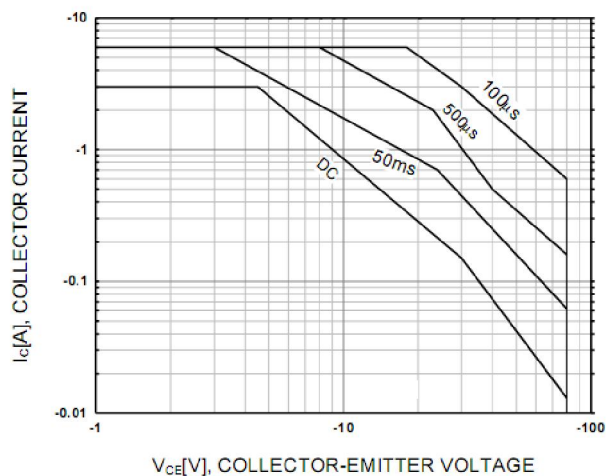


Figure 5. Safe Operating Area

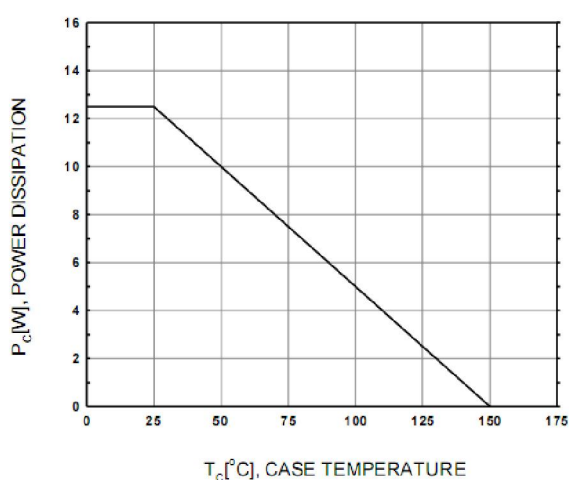
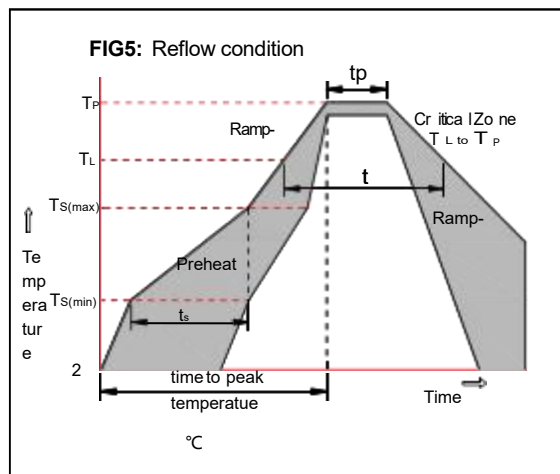


Figure 6. Power Derating

Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.80	0.094	0.110
A1	1.00	1.40	0.039	0.055
b	0.66	0.86	0.026	0.034
b1	1.17	1.37	0.046	0.054
c	0.40	0.60	0.016	0.024
D	7.30	7.70	0.287	0.303
E	10.60	11.00	0.417	0.433
e	2.25	2.33	0.089	0.092
e1	4.50	4.66	0.177	0.183
L	14.00	15.00	0.551	0.591
L1	1.90	2.50	0.075	0.098
Φ	3.10	3.30	0.122	0.130