

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CE0}	180	Vdc
Collector-Base Voltage	V_{CB0}	180	Vdc
Emitter-Base Voltage	V_{EB0}	5.0	Vdc
Collector Current — Continuous	I_C	50	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate,** $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

*FR-5 = 1.0 x 0.75 x 0.082 in.

**Alumina = 0.4 x 0.3 x 0.024 in. 99.9% alumina.

DEVICE MARKING

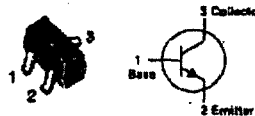
MMBC1654N5L = N5; MMBC1654N6L = N6; MMBC1654N7L = N7

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector Cutoff Current ($V_{CB} = 100\text{ V}, I_E = 0$)	I_{CBO}	—	—	0.1	$\mu\text{A}dc$
Emitter Cutoff Current ($V_{EB} = 5.0\text{ Vdc}, I_C = 0$)	I_{EBO}	—	—	0.1	$\mu\text{A}dc$
ON CHARACTERISTICS					
DC Current Gain ($V_{CE} = 3.0\text{ V}, I_C = 15\text{ mA}dc$)	h_{FE}				
		50	—	130	
		100	—	220	
		150	—	330	
Collector-Emitter Saturation Voltage ($I_C = 10\text{ mA}dc, I_B = 1.0\text{ mA}dc$)	$V_{CE(sat)}$	—	—	0.5	Vdc
Base-Emitter Saturation Voltage ($I_C = 10\text{ mA}dc, I_B = 1.0\text{ mA}dc$)	$V_{BE(sat)}$	—	—	1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product ($V_{CE} = 10\text{ Vdc}, I_C = 10\text{ mA}dc, f = 100\text{ MHz}$)	f_T	—	180	—	MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}, I_C = 0, f = 1.0\text{ MHz}$)	C_{obe}	—	4.5	—	pF

T-29-15

MMBC1654N5L
thru
MMBC1654N7L

CASE 31B-03, STYLE 6
SOT-23 (TO-236AB)**HIGH VOLTAGE
TRANSISTORS**

NPN SILICON