

TL/G/10038-54

DESCRIPTION

Process 79 is a double-diffused, silicon epitaxial planar device. Complement to Process 39.

APPLICATION

This device was designed for general purpose medium power amplifier and switching circuits that require collector currents to 1A.

PRINCIPAL DEVICE TYPES

TO-202 EBC: D4107-14, NSDU56

TO-237 EBC: 2N6729, 92PU56

TO-226 EBC: MPS6729

TO-92 EBC: PN6729

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

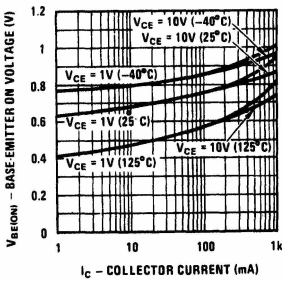
Symbol	Conditions	Min	Typ	Max	Units
BV_{CEO}	$I_C = 10 \text{ mA}$	70			V
BV_{CBO}	$I_C = 100 \mu\text{A}$	80			V
BV_{EBO}	$I_E = 10 \mu\text{A}$	5			V
I_{CBO}	$V_{CB} = 60\text{V}$			100	nA
I_{EBO}	$V_{EB} = 4\text{V}$			100	nA
h_{FE}	$I_C = 1 \text{ mA}, V_{CE} = 1\text{V}$ $I_C = 100 \text{ mA}, V_{CE} = 1\text{V}$ $I_C = 500 \text{ mA}, V_{CE} = 1\text{V}$	40 40 20	120	240	
$V_{CE(SAT)}$	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			0.8	V
$V_{BE(SAT)}$	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			1.4	V
f_T	$I_C = 100 \text{ mA}, V_{CE} = 10\text{V}$	70	125		MHz
C_{ob}	$V_{CB} = 10\text{V}$		14	18	pF
$P_{D(max)}$					
TO-202	$T_C = 25^\circ\text{C}$	10			W
	$T_A = 25^\circ\text{C}$	2			W
TO-226	$T_A = 25^\circ\text{C}$	1			W
TO-237	$T_C = 25^\circ\text{C}$	2			W
	$T_A = 25^\circ\text{C}$	850			mW
TO-92	$T_A = 25^\circ\text{C}$	600			mW
θ_{JC}					
TO-202	$T_C = 25^\circ\text{C}$			12.5	$^\circ\text{C/W}$
TO-237	$T_C = 25^\circ\text{C}$			62.5	$^\circ\text{C/W}$

Process 79

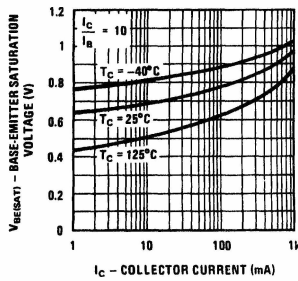
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$) (Continued)

Symbol	Conditions	Min	Typ	Max	Units
θ_{JA}					
TO-126	$T_A = 25^\circ\text{C}$			83.3	$^\circ\text{C}/\text{W}$
TO-202	$T_A = 25^\circ\text{C}$			62.5	$^\circ\text{C}/\text{W}$
TO-226	$T_A = 25^\circ\text{C}$			125	$^\circ\text{C}/\text{W}$
TO-237	$T_A = 25^\circ\text{C}$			147	$^\circ\text{C}/\text{W}$
TO-92	$T_A = 25^\circ\text{C}$			208	$^\circ\text{C}/\text{W}$
$T_{J(\text{max})}$	All Plastic Parts	150			$^\circ\text{C}$

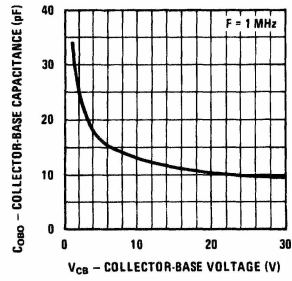
Base-Emitter ON Voltage vs Collector Current



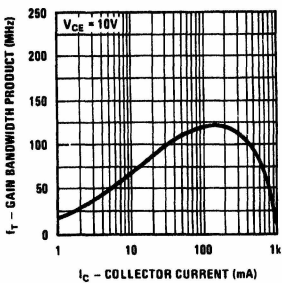
Base-Emitter Saturation Voltage vs Collector Current



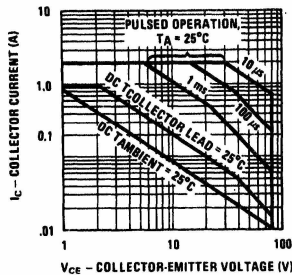
Collector-Base Capacitance vs Collector-Base Voltage



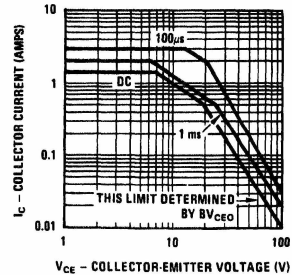
Gain Bandwidth Product vs Collector Current



Safe Operating Area TO-237

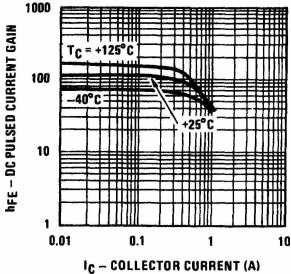


Safe Operating Area TO-202

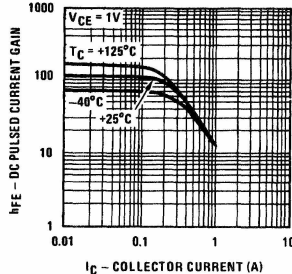


TL/G/10038-57

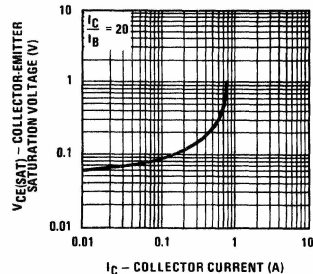
Pulsed Current Gain vs Collector Current



Pulsed Current Gain vs Collector Current

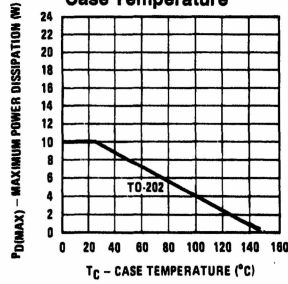


Collector-Emitter Saturation Voltage vs Collector Current

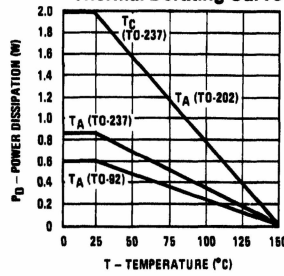


TL/G/10038-55

Maximum Power Dissipation vs Case Temperature

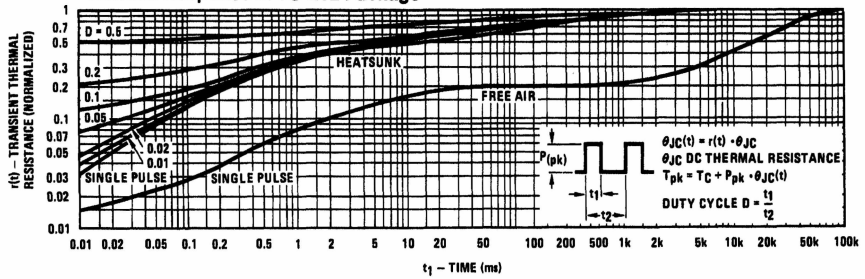


Thermal Derating Curve



TL/G/10038-56

Thermal Response in TO-202 Package



TL/G/10038-58