

TL/G/10038-49

DESCRIPTION

Process 78 is a double-diffused, silicon epitaxial planar device. Complement to Process 38.

APPLICATION

This device was designed for general purpose medium power amplifier and switching circuits that require collector currents to 1.5A.

PRINCIPAL DEVICE TYPES

TO-202 EBC: D4101-6, NSDU55

TO-237 EBC: 2N6727, 92PU55

TO-226 EBC: MPS6727

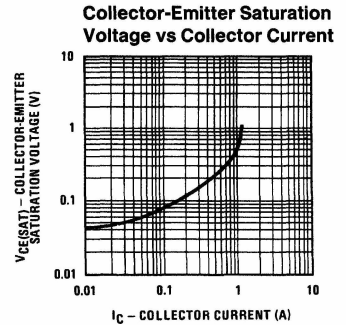
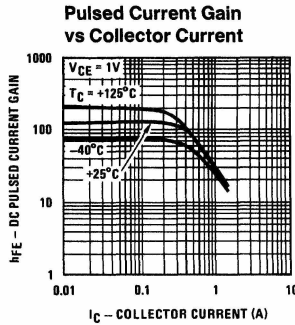
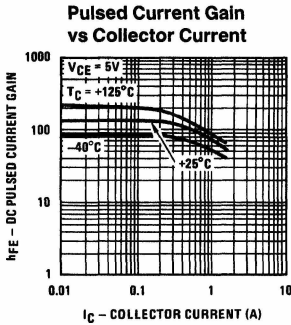
TO-92 EBC: PN6727

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

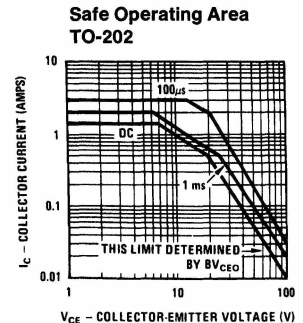
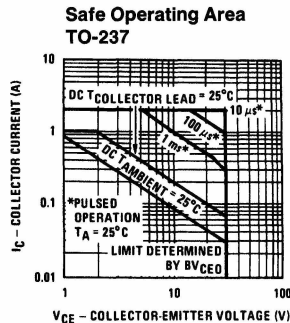
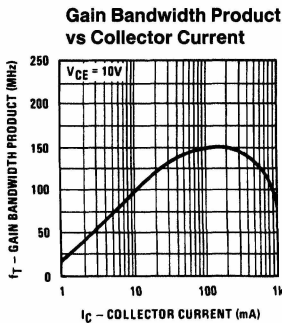
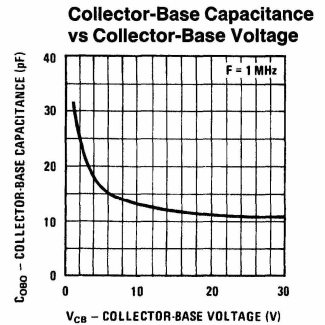
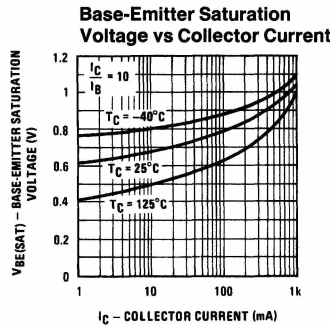
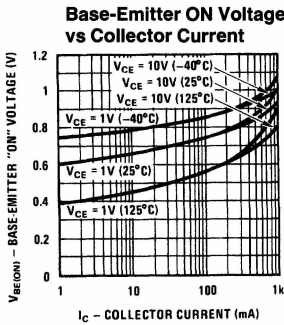
Symbol	Conditions	Min	Typ	Max	Units
BV_{CEO}	$I_C = 10 \text{ mA}$	40			V
BV_{CBO}	$I_C = 100 \mu\text{A}$	50			V
BV_{EBO}	$I_E = 10 \mu\text{A}$	5			V
I_{CBO}	$V_{CB} = 40\text{V}$			100	nA
I_{EBO}	$V_{EB} = 4\text{V}$			100	nA
h_{FE}	$I_C = 1 \text{ mA}, V_{CE} = 1\text{V}$ $I_C = 100 \text{ mA}, V_{CE} = 1\text{V}$ $I_C = 500 \text{ mA}, V_{CE} = 1\text{V}$	40 50 35	150	300	
$V_{CE(SAT)}$	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			0.6	V
$V_{BE(SAT)}$	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			1.3	V
t_r	$I_C = 100 \text{ mA}, V_{CE} = 10\text{V}$	80	150		MHz
C_{ob}	$V_{CB} = 10\text{V}$		20	25	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	$^\circ\text{C/W}$

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

Symbol	Conditions	Min	Typ	Max	Units
θ_{JA}					
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			$^\circ\text{C}$

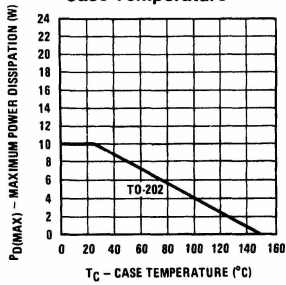


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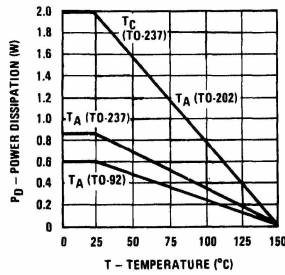


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Maximum Power Dissipation vs Case Temperature

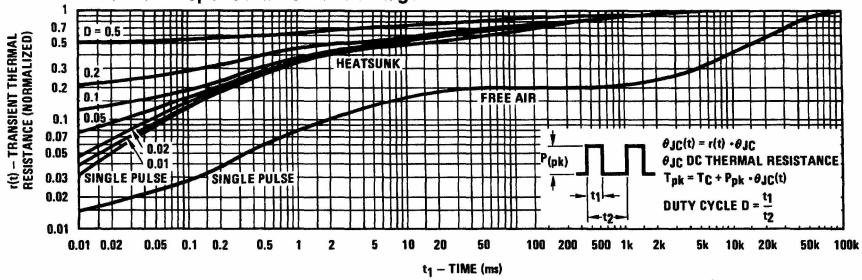


Thermal Derating Curve



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Thermal Response in TO-202 Package



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