RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

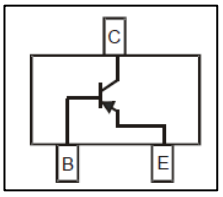
RT5140V

PNP General Purpose Amplifier

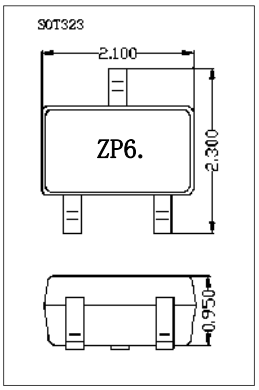
Unit:mm

- ◇ Totally Lead-Free & Fully RoHS Compliant
- ◇ Halogen and Antimony Free. “Green” Device
- ◇ Case Material: Molded Plastic, “Green” Molding Compound.
- ◇ UL Flammability Classification Rating 94V-0
- ◇ P/N suffix V means AEC-Q101 qualified, e.g:RT5140V
- ◇ P/N suffix V means Halogen-free

Equivalent Circuit



Marking Code : ZP6.



Maximum Ratings （@TA = +25°C, unless otherwise specified）

Symbol	Characteristic	Value	Unit
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current - Continuous	-2	A

Thermal Characteristics (@TA = +25°C, unless otherwise specified)

Symbol	Characteristic		Value	Unit
P_D	Power Dissipation		300	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	(Note 1)	313	°C/W
		(Note 2)	250	
$R_{\theta JL}$	Thermal Resistance, Junction to Leads		350	°C/W
T_J, T_{stg}	Operating and Storage Temperature Range		-55 to +150	°C

ESD Ratings

Symbol	Characteristic	Value	Unit	JEDEC Class
ESD HBM	Electrostatic Discharge - Human Body Model	4,000	V	3A
ESD MM	Electrostatic Discharge - Machine Model	400	V	C

2026-06/01
REV:O

Electrical Characteristics（Ta = 25 ℃）

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100μA, I_E = 0	-40	-	-	V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = -10mA, I_B = 0	-40	-	-	V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -100μA, I_C = 0	-5	-	-	V
I_{CBO}	Collector Cutoff Current	V_{CB} = -40V, IE = 0	-	-	-100	nA
		V_{CB} = -40V, I_E = 0, T_J = +150°C	-	-	-50	uA
I_{CES}	Collector Cutoff Current	V_{CE} = -40V, V_{BE} = 0	-	-	-100	nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = -5V, I_C = 0	-	-	-100	nA
On Characteristics						
H_{FE}	DC Current Gain	V_{CE} = -5V, I_C = -1mA	300	-	-	-
		V_{CE} = -5V, I_C = -100mA	300	-	800	
		V_{CE} = -5V, I_C = -500mA	250	-	-	
		V_{CE} = -5V, I_C = 1A	160	-	-	
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	I_C = -100mA, I_B = -1mA	-	-	-200	mV
		I_C = -500mA, I_B = -50mA	-	-	-250	
		I_C = -1A, I_B = -100mA	-	-	-500	
$R_{CE(SAT)}$	Collector-Emitter Saturation Resistance	I_C = -500mA, I_B = -50mA	-	-	500	mΩ
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	I_C = -1A, I_B = -50mA	-	-	-1.1	V
$V_{BE(ON)}$	Base-Emitter Turn On Voltage	V_{CE} = -5V, I_C = -1A	-	-	-1	V
Small Signal Characteristics						
C_{obo}	Output Capacitance	V_{CB} = -10V, f = 1.0MHz	-	13	-	pF
f_T	Current Gain-Bandwidth Product	V_{CE} = -10V, I_C = -50mA, f = 100MHz	150	-	-	MHz
Switching Characteristics						
t_{on}	Turn-On Time	V_{CC} = -10V I_C = -0.5A, I_{B1} = -I_{B2} = -25mA	-	60	-	ns
t_d	Delay Time		-	25	-	
t_r	Rise Time		-	35	-	
t_{off}	Turn-Off Time		-	250	-	
t_s	Storage Time		-	220	-	
t_f	Fall Time		-	30	-	

Notes:

1. For a device mounted with collector lead on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state

2. Same as Note 1, except the collector lead is on a 25mm x 25mm 1oz copper

3. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

RATING AND CHARACTERISTICS CURVES (RT5140V)

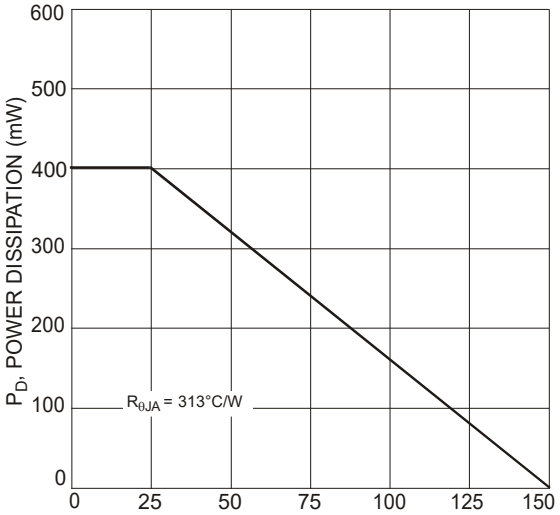


Fig. 1 Power Dissipation vs.
Ambient Temperature (Note 3)

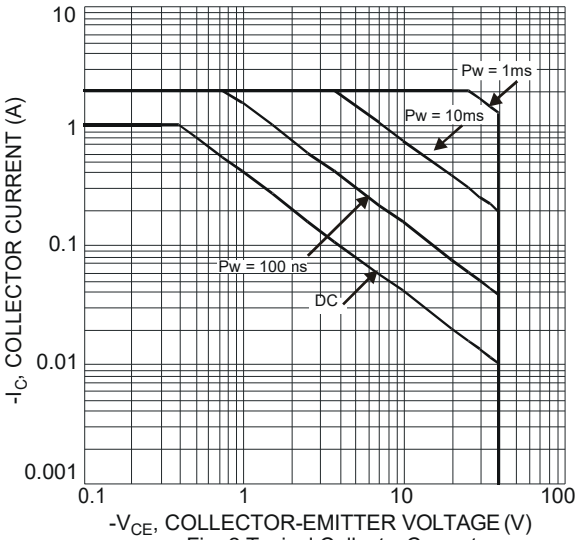


Fig. 2 Typical Collector Current
vs. Collector-Emitter Voltage (Note 3)

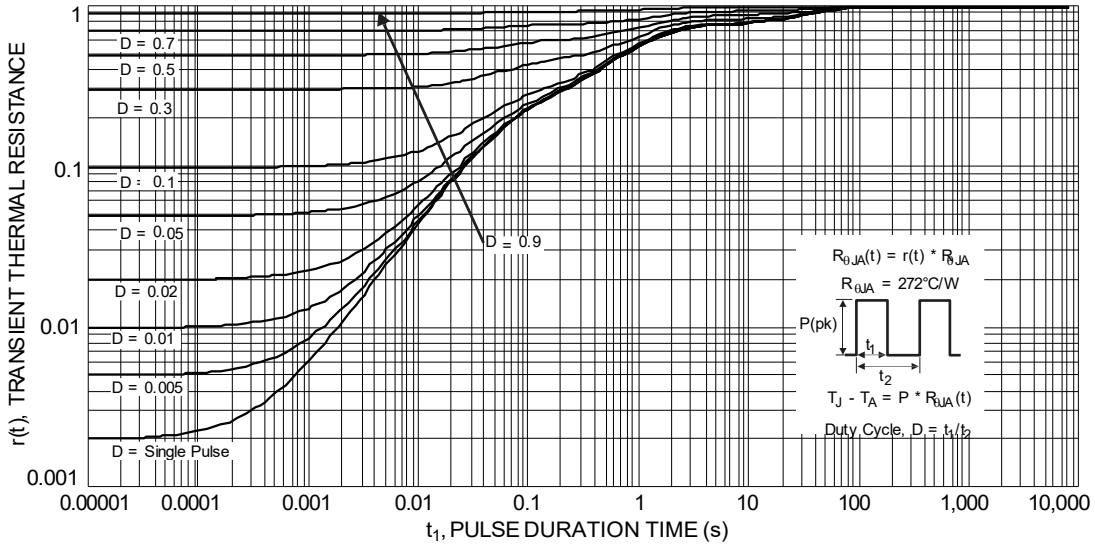


Fig. 3 Transient Thermal Response (Note 3)

RATING AND CHARACTERISTICS CURVES (RT5140V)

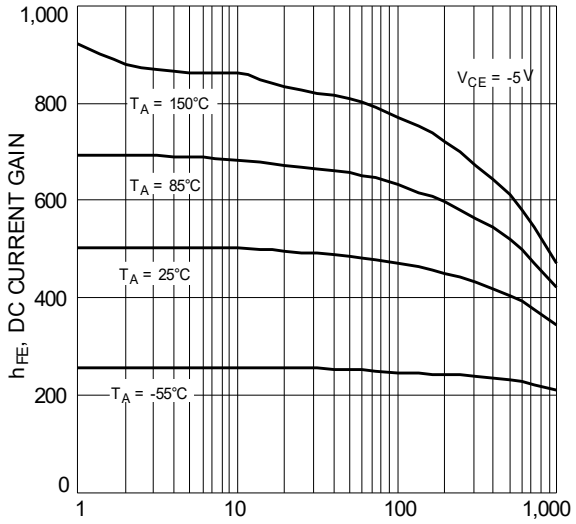


Fig. 4 Typical DC Current Gain vs. Collector Current

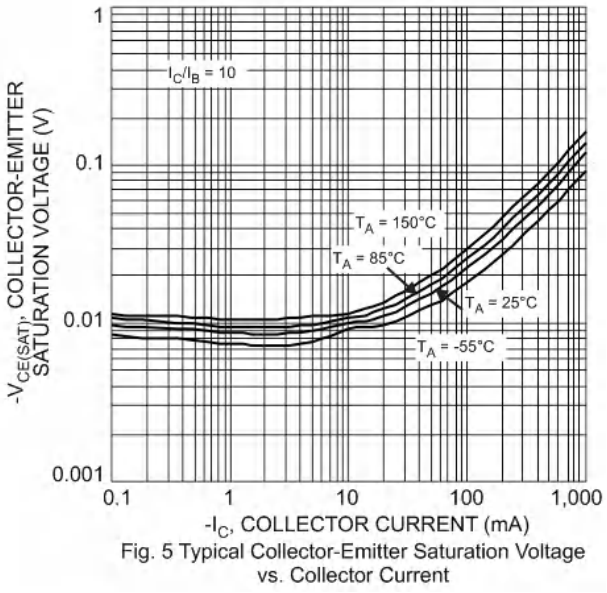


Fig. 5 Typical Collector-Emitter Saturation Voltage vs. Collector Current

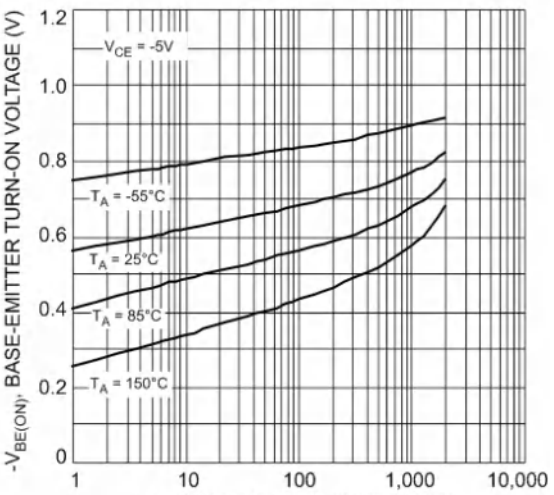


Fig. 6 Typical Base-Emitter Turn-On Voltage vs. Collector Current

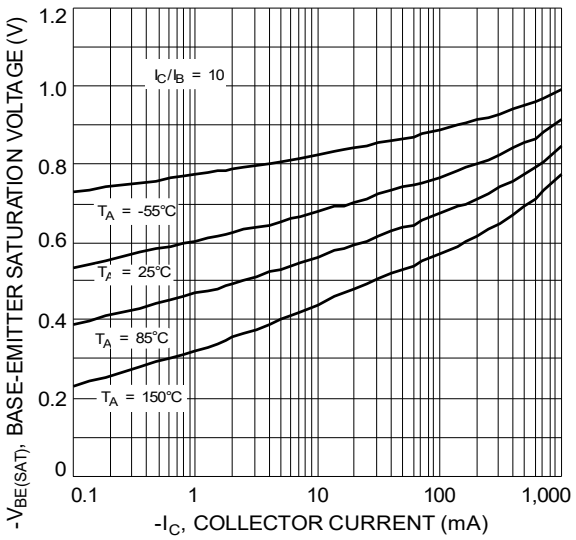


Fig. 7 Typical Base-Emitter Saturation Voltage vs. Collector Current

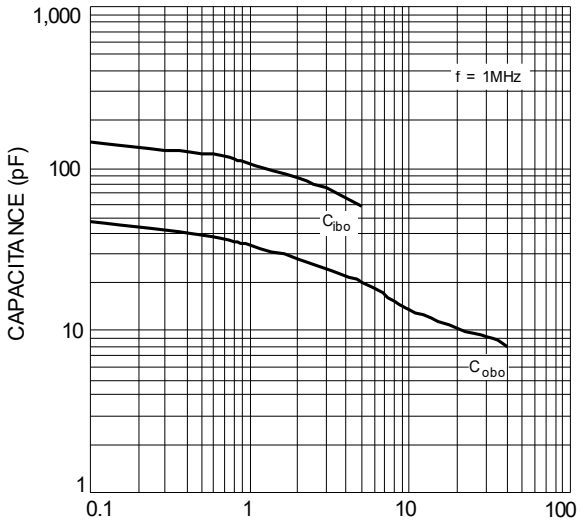


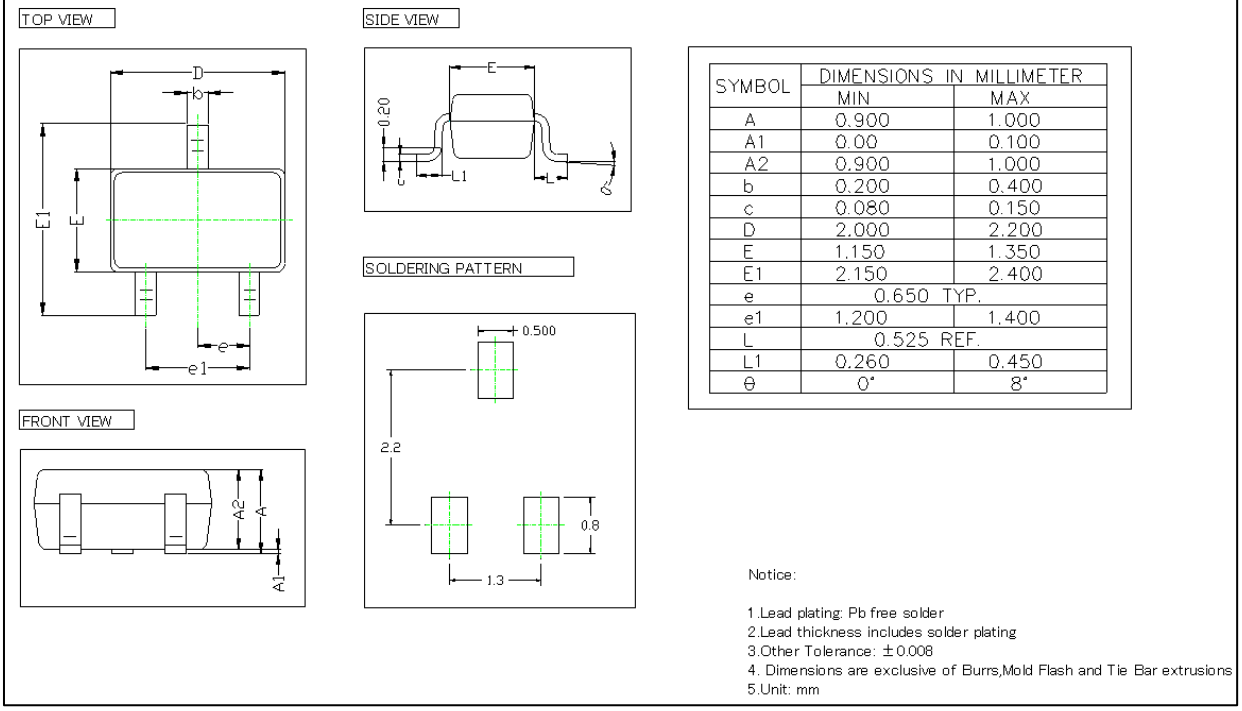
Fig. 8 Typical Capacitance Characteristics

Ordering Information

PACKAGE	PACKING CODE	REEL (EA)	COMPONENT SPACE(mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SOT-323	-T	3,000	---	---	178	390*205*310	120,000	5.29

Package Dimensions

Package outline : SOT323



SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.900	1.000
A1	0.00	0.100
A2	0.900	1.000
b	0.200	0.400
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.400
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.450
θ	0°	8°

Notice:

1.Lead plating: Pb free solder
2.Lead thickness includes solder plating
3.Other Tolerance: ±0.008
4. Dimensions are exclusive of Burrs,Mold Flash and Tie Bar extrusions
5.Unit: mm

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