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HIGH VOLTAGE SILICON DIFFUSED PNP TRANSISTORS

TYPES 2N5091A, 2N5093A, 2N5094A 2N5096A

X00254

FEATURES

. . . designed for use in low power, line-operated series pass and switch regulators.

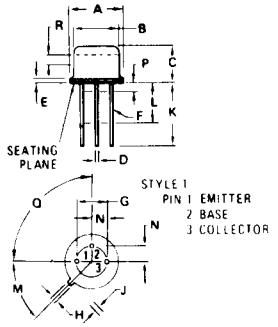
- HIGH COLLECTOR-EMITTER SUSTAINING VOLTAGE
  $V_{CEO(sus)}$ = 450 Vdc @ I_C = 50mAdc
- EXCELLENT DC CURRENT GAIN
  h_{FE} = 20-200 @ I_C 100 ma

MAXIMUM RATINGS

Rating	Symbol	91A	93A	94A	96A	Unit
Collector-Emitter Voltage	V_{CEO}	300	350	400	450	Vdc
Collector-Base Voltage	V_{CB}	350	400	450	500	Vdc
Emitter-Base Voltage	V_{EB}	6				Vdc
Collector Current – Continuous	I_C	1				Adc
Base Current	I_B	.5				Adc
Total Device Dissipation @ T_C = 100°C Derate above 100°C	P_D	2 26.7				Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200				°C

PHYSICAL DIMENSIONS

In accordance with JEDEC (TO5) outline



DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	-	0.500	
L	6.35		0.250	
M	45° NOM		45° NOM	
P		1.27		0.050
Q	90° NOM		90° NOM	
R	2.54		0.100	

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max.	Unit
Thermal Resistance, Junction to Case	θ_{JC}	87.5	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Fig. No.	Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage* (I_C = 50 mAdc, I_B = 0)	2N5091A 2N5093A 2N5094A 2N5096A	$BV_{CEO(sus)}$*	300 350 400 450		Vdc
Collector-Emitter Voltage R = 1K Ω	2N5091A 2N5093A 2N5094A 2N5096A	BV_{CER}	350 400 450 500		Vdc
Collector Current I_E = 0, I_C = 0.1 ma	2N5091A 2N5093A 2N5094A 2N5096A	I_{CBO}	350 400 450 500		Vdc
Emitter Base Breakdown Voltage I_C = 0, I_E = 20 ua	ALL	BV_{EBO}	6		
Emitter Cutoff Current (V_{BE} = 4, Vdc, I_C = 0)	ALL	I_{EBO}		250	nAdc

ELECTRICAL CHARACTERISTICS

Characteristic	Fig. No.	Symbol	Min	Max	Unit
ON CHARACTERISTICS					
DC Current Gain*		h_{FE}*			
(I_C = 100mAdc, V_{CE} = 15 Vdc)	ALL		20	200	
(I_C = 25mAdc, V_{CE} = 10 Vdc)			40	250	
(I_C = 1mAdc, V_{CE} = 10 Vdc)			20	200	
Collector-Emitter Saturation Voltage* (I_C = 25mAdc, I_B = 2.5mAdc)	ALL	$V_{CE(Sat)}$*		3	Vdc
Base-Emitter Saturation Voltage* (I_C = 25mAdc, V_{CE} = 10 V)	ALL	$V_{BE(Sat)}$*		1	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product (I_C = 10mAdc, V_{CE} = 20 Vdc, f = 5 MHz)	ALL	f_T	4		MHz
Output Capacitance (V_{CB} = 15 Vdc, I_E = 0, f = 2 MHz)	ALL	C_{ob}		20	pF
SWITCHING CHARACTERISTICS					
Delay Time	(V_{CC} = 150 Vdc, $V_{EB(off)}$ = 0 Vdc, I_C = 100mAdc, I_{B1} = 10mAdc)	ALL	t_d	700	ns
Rise Time			t_r	1500	ns
Storage Time	(V_{CC} = 150 Vdc, I_C = 100mAdc I_{B1} = I_{B2} = 10mAdc)	ALL	t_s	3	μs
Fall Time			t_f	200	ns

*Pulse Test: Pulse Width 300 μs, Duty Cycle = 2%

TYPICAL OPERATING CURVES

THERMAL RESPONSE