ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
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NTE7092, NTE7093, NTE7094, NTE7095
Integrated Circuit
Hybrid Voltage Regulator

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Peak Input Voltage, V_{IN}
- NTE7092 . . . . . 950V
- NTE7093, NTE7094, NTE7095 . . . . . 550V

Input Current, I_{IN}
- NTE7092
  - Continuous 6A
  - Pulse 12A
- NTE7093, NTE7095 . . . . . 6A
- NTE7094
  - Continuous 10A
  - Pulse 20A

Power Dissipation (T_C = +100°C), P_D
- No Fin 3W
- T_C = +100°C 27W

Junction Temperature, T_J . . . . . +150°C

Operating Temperature Range (Case Temperature, Note 1), T_{opr} . . . . . –20° to +125°C

Storage Temperature Range, T_{stg} . . . . . –30° to +125°C

Thermal Resistance, Junction–to–Case (Upper part of Junction Stem), R_{thJC} . . . . . 1.8°C/W

Note 1. Recommended Case Temperature: T_C = +100°C

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Set Reference Voltage	V_{REF}	I_{IN} = 40mA, Note 2	7.00	7.15	7.30	V
Temperature Coefficient of Reference Voltage	K_{VREF}	T_C = –20° to +100°C, I_{IN} = 40mA	–	–2	–	mV/°C
Power Transistor Characteristics						
Collector Saturation Voltage NTE7092	$V_{CE(sat)}$	I_C = 2A, I_B = 0.4A	–	–	1.0	V
NTE7093			–	–	0.3	V
NTE7094		I_C = 5A, I_B = 1A	–	–	0.3	V
NTE7095		I_C = 2A, I_B = 0.4A	–	–	0.4	V

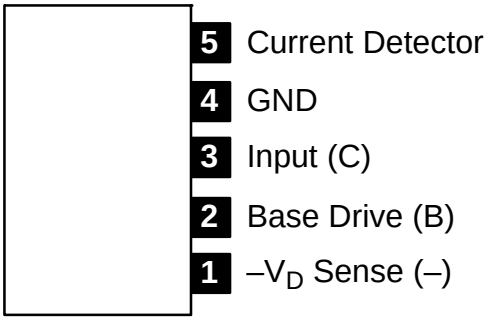
Note 2. The Off–line detecting control voltage is approximately 6V.

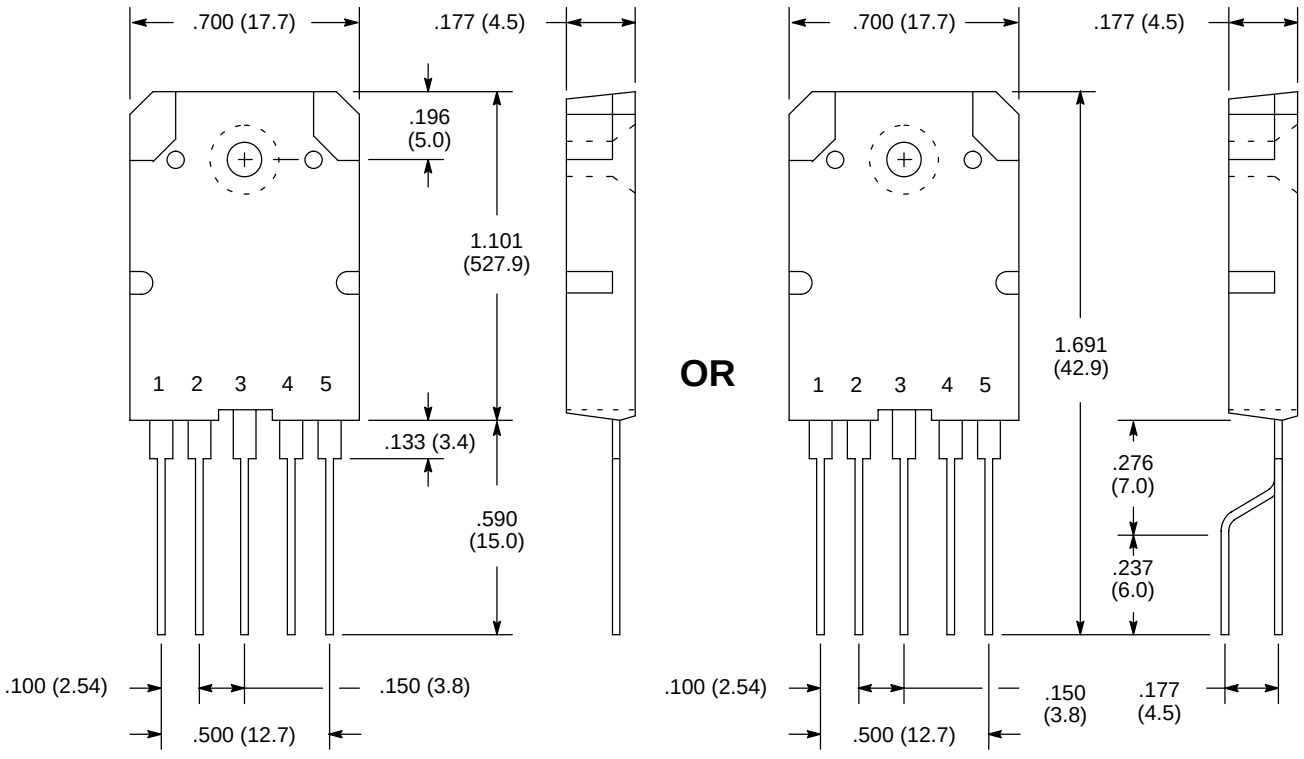
Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Transistor Characteristics (Cont'd)						
DC Current Gain NTE7092	h_{FE}	V_{CE} = 4V, I_C = 1A	10	–	30	
NTE7093			13	–	40	
NTE7094, NTE7095			15	–	40	
Collector Cutoff Current NTE7092	I_{CEX}	V_{CE} = 950V, V_{BE} = 1.5V	–	–	1	mA
NTE7093, NTE7094		V_{CE} = 550V, V_{BE} = 1.5V	–	–	1	mA
NTE7095		V_{CE} = 900V, V_{BE} = 1.5V	–	–	1	mA
Base–Emitter Voltage	$V_{EB(R)}$	$I_{EB(R)}$ = 100μA, Note 3	–	–	1	V
Base–Emitter Saturation Voltage NTE7092, NTE7093, NTE7095	$V_{BE(sat)}$	I_C = 2A, I_B = 0.4A	–	–	1.5	V
NTE7094		I_C = 5A, I_B = 1A	–	–	1.5	V
Switching Time NTE7092	t_s	V_{CC} = 250V, I_C = 2A, I_{B1} = 0.15A, I_{B2} = 0.5A	–	–	7	μs
	t_r		–	–	1	μs
NTE7093	t_s	I_C = 2A, R_L = 50Ω, I_{B1} = 0.3A, I_{B2} = –0.3A	–	–	12	μs
	t_r		–	–	0.4	μs
NTE7094	t_s	I_C = 3A, R_L = 33Ω, I_{B1} = 0.5A, I_{B2} = –0.5A	–	–	12	μs
	t_r		–	–	0.7	μs
NTE7095	t_s	I_C = 3A, R_L = 83Ω, I_{B1} = 0.4A, I_{B2} = –0.4A	–	–	12	μs
	t_r		–	–	0.4	μs

Note 3. The reverse Bias Current (Pulse) of Base–Emitter is no more than 400mA.

Pin Connection Diagram
(Front View)




.700 (17.7)
.177 (4.5)
.196
(5.0)
1.101
(527.9)
1 2 3 4 5
.133 (3.4)
.590
(15.0)
.100 (2.54)
.150 (3.8)
.500 (12.7)
OR
.700 (17.7)
.177 (4.5)
1.691
(42.9)
1 2 3 4 5
.276
(7.0)
.237
(6.0)
.100 (2.54)
.150
(3.8)
.177
(4.5)
.500 (12.7)