PRODUCT NAME : 2N6045 NPN Medium Power Darlington Transistor

PRICE : Rs 20.00
SKU : RM2103

DESCRIPTION

Features

- Collector-Emitter Volt (Vceo): 100V
- Collector-Base Volt (Vcbo): 100V
- Collector Current (Ic): 8.0A
- hfe: 1,000-20,000 @ 3.0A
- Power Dissipation (Ptot): 75W
- Type: PNP

MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

Order this document
by 2N6040/D

Plastic Medium-Power Complementary Silicon Transistors

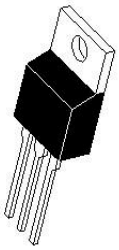
. . . designed for general–purpose amplifier and low–speed switching applications.

- High DC Current Gain —
  h_{FE} = 2500 (Typ) @ I_C = 4.0 Adc
- Collector–Emitter Sustaining Voltage — @ 100 mAdc —
  $V_{CEO(sus)}$ = 60 Vdc (Min) — 2N6040, 2N6043
  = 80 Vdc (Min) — 2N6041, 2N6044
  = 100 Vdc (Min) — 2N6042, 2N6045
- Low Collector–Emitter Saturation Voltage —
  $V_{CE(sat)}$ = 2.0 Vdc (Max) @ I_C = 4.0 Adc — 2N6040,41, 2N6043,44
  = 2.0 Vdc (Max) @ I_C = 3.0 Adc — 2N6042, 2N6045
- Monolithic Construction with Built–In Base–Emitter Shunt Resistors

PNP
2N6040
thru
2N6042*
NPN
2N6043
thru
2N6045*

*Motorola Preferred Device

DARLINGTON
8 AMPERE
COMPLEMENTARY
SILICON
POWER TRANSISTORS
60–80–100 VOLTS
75 WATTS



CASE 221A–06
TO–220AB

MAXIMUM RATINGS (1)

Rating	Symbol	2N6040 2N6043	2N6041 2N6044	2N6042 2N6045	Unit
Collector–Emitter Voltage	V_{CEO}	60	80	100	Vdc
Collector–Base Voltage	V_{CB}	60	80	100	Vdc
Emitter–Base Voltage	V_{EB}	5.0			Vdc
Collector Current — Continuous Peak	I_C	8.0 16			Adc
Base Current	I_B	120			mAdc
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	75 0.60			Watts W/°C
Operating and Storage Junction, Temperature Range	T_J, T_{stg}	−65 to +150			°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.67	°C/W
Thermal Resistance, Junction to Ambient	θ_{JA}	57	°C/W

(1) Indicates JEDEC Registered Data.

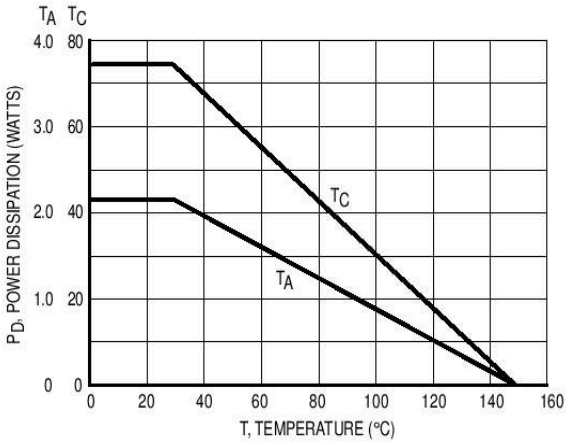


Figure 1. Power Derating

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 1

MOTOROLA

2N6040 thru 2N6042 2N6043 thru 2N6045

***ELECTRICAL CHARACTERISTICS** (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (I_C = 100 mAdc, I_B = 0)	2N6040, 2N6043 2N6041, 2N6044 2N6042, 2N6045	$V_{CEO(sus)}$	 60 80 100	 — — —	Vdc
Collector Cutoff Current (V_{CE} = 60 Vdc, I_B = 0) (V_{CE} = 80 Vdc, I_B = 0) (V_{CE} = 100 Vdc, I_B = 0)	 2N6040, 2N6043 2N6041, 2N6044 2N6042, 2N6045	I_{CEO}	 — — —	 20 20 20	µA
Collector Cutoff Current (V_{CE} = 60 Vdc, $V_{BE(off)}$ = 1.5 Vdc) (V_{CE} = 80 Vdc, $V_{BE(off)}$ = 1.5 Vdc) (V_{CE} = 100 Vdc, $V_{BE(off)}$ = 1.5 Vdc) (V_{CE} = 60 Vdc, $V_{BE(off)}$ = 1.5 Vdc, T_C = 150°C) (V_{CE} = 80 Vdc, $V_{BE(off)}$ = 1.5 Vdc, T_C = 150°C) (V_{CE} = 100 Vdc, $V_{BE(off)}$ = 1.5 Vdc, T_C = 150°C)	 2N6040, 2N6043 2N6041, 2N6044 2N6042, 2N6045 2N6040, 2N6043 2N6041, 2N6044 2N6042, 2N6045	I_{CEX}	 — — — — — —	 20 20 20 200 200 200	µA
Collector Cutoff Current (V_{CB} = 60 Vdc, I_E = 0) (V_{CB} = 80 Vdc, I_E = 0) (V_{CB} = 100 Vdc, I_E = 0)	 2N6040, 2N6043 2N6041, 2N6044 2N6042, 2N6045	I_{CBO}	 — — —	 20 20 20	µA
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)		I_{EBO}	—	2.0	mAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 4.0 Adc, V_{CE} = 4.0 Vdc) (I_C = 3.0 Adc, V_{CE} = 4.0 Vdc) (I_C = 8.0 Adc, V_{CE} = 4.0 Vdc)	 2N6040, 41, 2N6043, 44 2N6042, 2N6045 All Types	h_{FE}	 1000 1000 100	 20.000 20,000 —	—
Collector–Emitter Saturation Voltage (I_C = 4.0 Adc, I_B = 16 mAdc) (I_C = 3.0 Adc, I_B = 12 mAdc) (I_C = 8.0 Adc, I_B = 80 Adc)	 2N6040, 41, 2N6043, 44 2N6042, 2N6045 All Types	$V_{CE(sat)}$	 — — —	 2.0 2.0 4.0	Vdc
Base–Emitter Saturation Voltage (I_C = 8.0 Adc, I_B = 80 mAdc)		$V_{BE(sat)}$	—	4.5	Vdc
Base–Emitter On Voltage (I_C = 4.0 Adc, V_{CE} = 4.0 Vdc)		$V_{BE(on)}$	—	2.8	Vdc
DYNAMIC CHARACTERISTICS					
Small Signal Current Gain (I_C = 3.0 Adc, V_{CE} = 4.0 Vdc, f = 1.0 MHz)		$\|h_{fe}\|$	4.0	—	
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 0.1 MHz)	2N6040/2N6042 2N6043/2N6045	C_{ob}	— —	300 200	pF
Small–Signal Current Gain (I_C = 3.0 Adc, V_{CE} = 4.0 Vdc, f = 1.0 kHz)		h_{fe}	300	—	—

* Indicates JEDEC Registered Data.

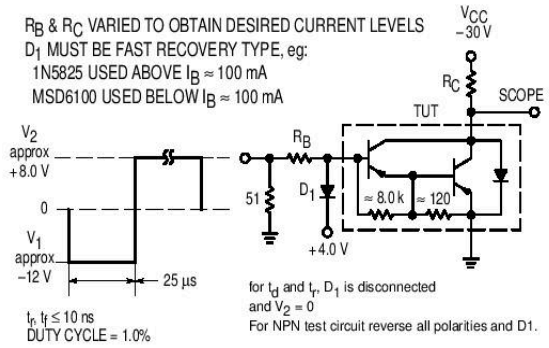


Figure 2. Switching Times Equivalent Circuit

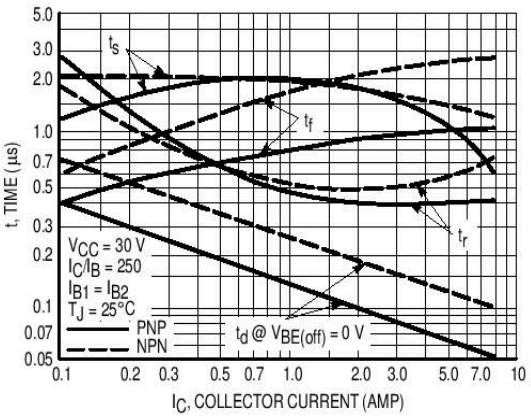


Figure 3. Switching Times