

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
 SPRINGFIELD, NEW JERSEY 07081
 U.S.A.

TELEPHONE: (973) 376-2922
 (212) 227-6005
 FAX: (973) 376-8960

SWITCHMODE SERIES NPN SILICON POWER TRANSISTORS

These devices are designed for high-voltage, high-speed, power switching inductive circuits where fall time is critical. They are particularly suited for 115 and 220 volt line operated SWITCHMODE applications such as:

- * Switching Regulators
- * PWM Inverters and Motor Controls
- * Solenoid and Relay Drivers
- * Deflection Circuits

Specification Features-

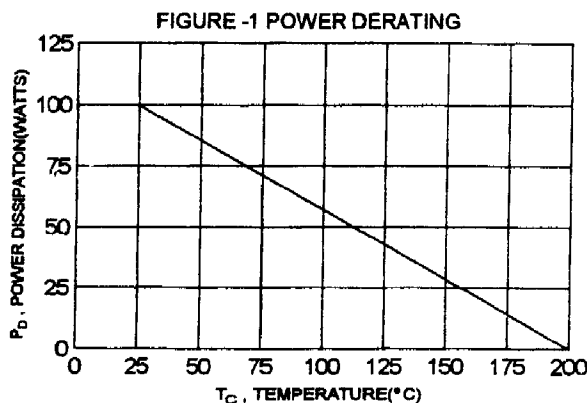
High Temperature Performance Specified for: Reversed Biased SOA with inductive loads Switching Times with inductive Loads Saturation Voltages, Leakage Currents.

MAXIMUM RATINGS

Characteristic	Symbol	2N6542	2N6543	Unit
Collector-Emitter Voltage	$V_{CEO(sus)}$	300	400	V
Collector-Emitter Voltage	V_{CEV}	650	850	V
Collector-Base Voltage	V_{EBC}	8.0		V
Collector current - Continuous	I_C	5.0		A
- Peak	I_{CM}	10		
Base current - Continuous	I_B	5		A
Emitter current - Continuous	I_E	10		A
- Peak	I_{EM}	20		
Total Power Dissipation @ $T_C = 25^\circ C$	P_D	100		W
Derate above $25^\circ C$		0.57		W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	- 65 to +200		$^\circ C$

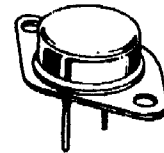
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.75	$^\circ C/W$

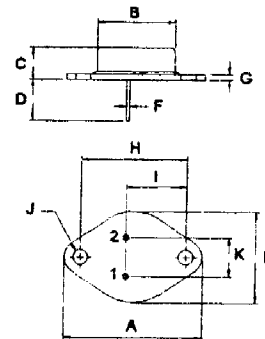


NPN
2N6542
2N6543

5 AMPERE
NPN SILICON
POWER TRANSISTORS
300 - 400 VOLTS
100 WATTS



TO-3



PIN 1. BASE
 2. EMITTER
 COLLECTOR (CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	28.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

2N6542, 2N6543 NPN

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector - Emitter Sustaining Voltage (1) ($I_C = 100 \text{ mA}$, $I_B = 0$)	2N6542 2N6543	$V_{CE(sus)}$	300 400	V
Collector Cutoff Current ($V_{CEV} = 650 \text{ V}$, $V_{BE(off)} = 1.5 \text{ V}$) ($V_{CEV} = 850 \text{ V}$, $V_{BE(off)} = 1.5 \text{ V}$) ($V_{CEV} = 650 \text{ V}$, $V_{BE(off)} = 1.5 \text{ V}$, $T_c = 100^\circ\text{C}$) ($V_{CEV} = 850 \text{ V}$, $V_{BE(off)} = 1.5 \text{ V}$, $T_c = 100^\circ\text{C}$)	2N6542 2N6543 2N6542 2N6543	I_{CEV}	0.5 0.5 3.0 3.0	mA
Emitter Cutoff Current ($V_{EB} = 8.0 \text{ V}$, $I_C = 0$)		I_{EBO}	1.0	mA

ON CHARACTERISTICS(1)

DC Current Gain ($I_C = 1.5 \text{ A}$, $V_{CE} = 2.0 \text{ V}$) ($I_C = 3.0 \text{ A}$, $V_{CE} = 2.0 \text{ V}$)		hFE	12 7.0	60 35	
Collector-Emitter Saturation Voltage ($I_C = 3.0 \text{ A}$, $I_B = 0.6 \text{ A}$) ($I_C = 5.0 \text{ A}$, $I_B = 1.0 \text{ A}$)		$V_{CE(sat)}$		1.0 5.0	V
Base-Emitter Saturation Voltage ($I_C = 3.0 \text{ A}$, $I_B = 0.6 \text{ A}$)		$V_{BE(sat)}$		1.4	V

DYNAMIC CHARACTERISTICS

Current Gain Bandwidth (2) ($I_C = 200 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 1.0 \text{ MHz}$)		f_T	6.0	35	MHz
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SWITCHING CHARACTERISTICS

Delay Time	$V_{CC} = 250 \text{ V}$ $I_C = 3.0 \text{ A}$ $I_{B1} = I_{B2} = 0.6 \text{ A}$ $t_p = 0.1 \text{ ms}$ Duty Cycle $\leq 2.0\%$	t_d		0.05	us
Rise Time		t_r		0.7	us
Storage Time		t_s		4.0	us
Fall Time		t_f		0.8	us

(1) Pulse Test: Pulse width = 300 us , Duty Cycle $\leq 2.0\%$

(2) $f_T = |h_{re}| \cdot f_{test}$