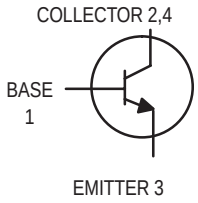
High Voltage Transistor Surface Mount

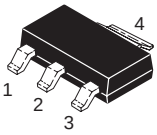
NPN Silicon

PZTA42T1

Motorola Preferred Device



SOT–223 PACKAGE
NPN SILICON
HIGH VOLTAGE
TRANSISTOR
SURFACE MOUNT



CASE 318E-04, STYLE 1
TO-261AA

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage (Open Base)	V_{CEO}	300	Vdc
Collector-Base Voltage (Open Emitter)	V_{CBO}	300	Vdc
Emitter-Base Voltage (Open Collector)	V_{EBO}	6.0	Vdc
Collector Current (DC)	I_C	500	mAdc
Total Power Dissipation @ T_A = 25°C(1)	P_D	1.5	Watts
Storage Temperature Range	T_{stg}	–65 to +150	°C
Junction Temperature	T_J	150	°C

DEVICE MARKING

P1D

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient(1)	$R_{\theta JA}$	83.3	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(2) (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	300	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	300	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	6.0	—	Vdc
Collector-Base Cutoff Current (V_{CB} = 200 Vdc, I_E = 0)	I_{CBO}	—	0.1	μAdc
Emitter-Base Cutoff Current (V_{BE} = 6.0 Vdc, I_C = 0)	I_{EBO}	—	0.1	μAdc

1. Device mounted on a glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.059 in.; mounting pad for the collector lead min 0.93 in^2.
2. Pulse Test Conditions, t_p = 300 μs, δ = 0.02.

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

REV 2

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

ON CHARACTERISTICS

DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 10 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 30 mAdc, V_{CE} = 10 Vdc)	h_{FE}	 25 40 40	 — — —	—

DYNAMIC CHARACTERISTICS

Current-Gain — Bandwidth Product (I_C = 10 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	f_T	50	—	MHz
Feedback Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	C_{re}	—	3.0	pF
Collector-Emitter Saturation Voltage (I_C = 20 mAdc, I_B = 2.0 mAdc)	$V_{CE(sat)}$	—	0.5	Vdc
Base-Emitter Saturation Voltage (I_C = 20 mAdc, I_B = 2.0 mAdc)	$V_{BE(sat)}$	—	0.9	Vdc