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MPSA05 & MPSA06
Silicon NPN Transistors
High Voltage, General Purpose Amplifier
TO–92 Type Package

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}
- MPSA05 . . . . . 60V
- MPSA06 . . . . . 80V

Collector–Base Voltage, V_{CBO}
- MPSA05 . . . . . 60V
- MPSA06 . . . . . 80V

Emitter–Base Voltage, V_{EBO} 4V
Continuous Collector Current, I_C 500mA
Total Device Dissipation @ T_A = +25°C, P_D 625mW
- Derate Above +25°C . . . . . 5mW/°C

Total Device Dissipation @ T_C = +25°C, P_D 1.5W
- Derate Above +25°C . . . . . 12mW/°C

Operating Junction Temperature Range, T_J . . . . . –55° to +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Thermal Resistance, Junction–to–Ambient (Note 1), R_{thJA} . . . . . 200°C/mW
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 83.3°C/mW

Note 1. R_{thJA} is measured with the device soldered into a typical printed circuit board.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage MPSA05	$V_{(BR)CEO}$	I_B = 1mA, I_C = 0	60	–	–	V
MPSA06			80	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	4	–	–	V
Collector Cutoff Current	I_{CES}	V_{CE} = 60V, I_B = 0	–	–	0.1	μA
Collector Cutoff Current MPSA05	I_{CBO}	V_{CB} = 60V, I_E = 0	–	–	0.1	μA
MPSA06		V_{CB} = 80V, I_E = 0	–	–	0.1	μA

Note 2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	I_C = 10mA, V_{CE} = 1V	100	–	–	
		I_C = 100mA, V_{CE} = 1V	100	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 100mA, I_B = 10mA	–	–	0.25	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 100mA, V_{CE} = 1V	–	–	1.2	V
Small–Signal Characteristics						
Current Gain – Bandwidth Product MPSA05	f_T	I_C = 10mA, V_{CE} = 2V, f = 100MHz, Note 3	100	–	–	MHz
MPSA06			100	–	–	MHz

Note 3. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.