



MJE13007-XS

NPN SILICON TRANSISTOR

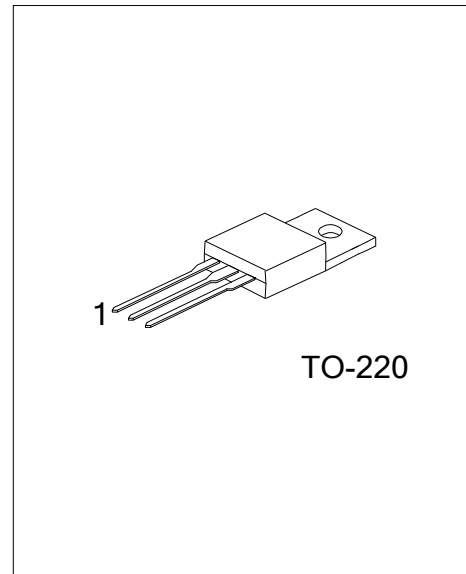
NPN BIPOLAR POWER TRANSISTOR FOR SWITCHING POWER SUPPLY APPLICATIONS

DESCRIPTION

The UTC **MJE13007-XS** is designed for high-voltage, high-speed power switching inductive circuits where fall time is critical. It is particularly suited for 115 and 220 V switch mode applications.

FEATURES

- * $V_{CEO(SUS)}$ 400V
- * 700V Blocking Capability



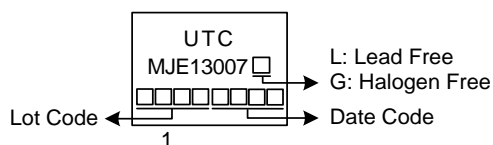
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MJE13007L-XS-TA3-T	MJE13007G-XS-TA3-T	TO-220	B	C	E	Tube

Note: Pin Assignment: B: Base C: Collector E: Emitter

<p>MJE13007G-XS-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Emitter Sustaining Voltage		V_{CEO}	400	V
Collector-Emitter Breakdown Voltage		V_{CBO}	700	V
Collector-Emitter Voltage		V_{CES}	700	V
Emitter-Base Voltage		V_{EBO}	9.0	V
Collector Current	Continuous	I_C	5	A
	Peak (1)	I_{CM}	10	A
Power Dissipation ($T_C = 25^\circ\text{C}$)		P_D	80	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	1.56	$^\circ\text{C/W}$

Note: 1. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle $\leq 10\%$.

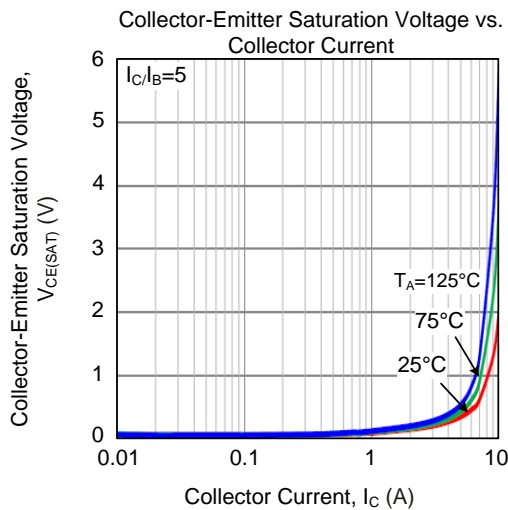
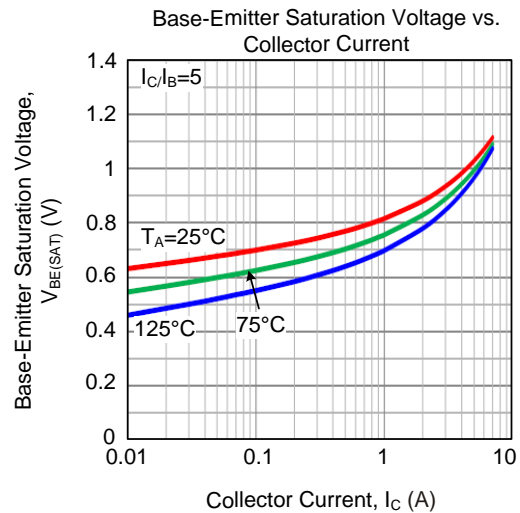
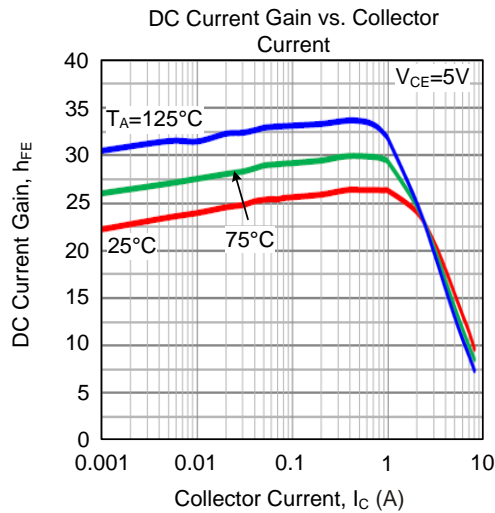
Measurement made with thermocouple contacting the bottom insulated mounting surface of the package (in a location beneath the die), the device mounted on a heatsink with thermal grease applied at a mounting torque of 6 to 8•lbs.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	$I_C=10\text{mA}$, $I_B=0$	400			V
Collector Cutoff Current	I_{CBO}	$V_{CES}=700\text{V}$			0.1	mA
		$V_{CES}=700\text{V}$, $T_C=125^\circ\text{C}$			1.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=9.0\text{V}$, $I_C=0$			100	μA
DC Current Gain	h_{FE1}	$I_C=2.0\text{A}$, $V_{CE}=5.0\text{V}$	8.0		40	
	h_{FE2}	$I_C=5.0\text{A}$, $V_{CE}=5.0\text{V}$	5.0		30	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=5.0\text{A}$, $I_B=1.0\text{A}$			2.0	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=5.0\text{A}$, $I_B=1.0\text{A}$			1.6	V
Output Capacitance	C_{OB}	$V_{CB}=10\text{V}$, $I_E=0$, $f=0.1\text{MHz}$		57		pF
RESISTIVE LOAD (TABLE 1)						
Delay Time	t_D	$V_{CC}=125\text{V}$, $I_C=5.0\text{A}$, $I_{B1}=I_{B2}=1.0\text{A}$, $t_P=25\mu\text{s}$, Duty Cycle $\leq 1.0\%$		0.025	0.1	μs
Rise Time	t_R			0.5	1.5	μs
Storage Time	t_S			1.8	3.0	μs
Fall Time	t_F			0.23	0.7	μs

Note: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

■ TYPICAL CHARACTERISTICS



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