



MJE13007-XS

NPN SILICON TRANSISTOR

NPN BIPOLAR POWER TRANSISTOR FOR SWITCHING POWER SUPPLY APPLICATIONS

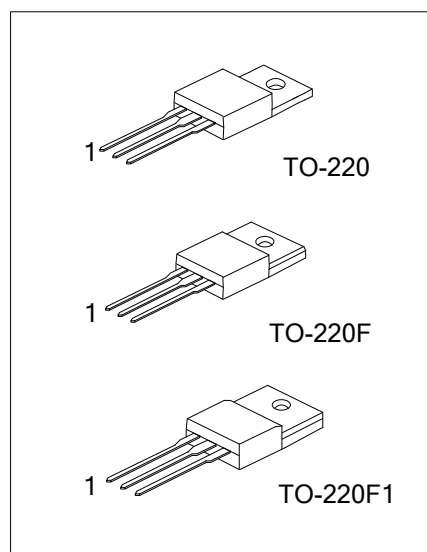
DESCRIPTION

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 115V and 220V switch mode applications.

FEATURES

* $V_{CEO(SUS)}$ 400V

* 700V Blocking Capability



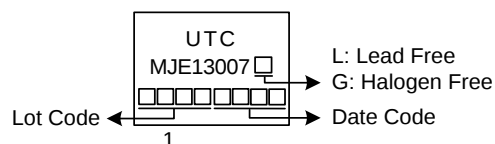
ORDERING INFORMATION

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
MJE13007L-XS-TF1-T	MJE13007G-XS-TF1-T	TO-220F1	B	C	E	Tube
MJE13007L-XS-TF3-T	MJE13007G-XS-TF3-T	TO-220F	B	C	E	Tube

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

MJE13007G-XS-TA3-T (1) Packing Type (2) Package Type (3) Green Package	(1) T: Tube (2) TA3: TO-220, TF1: TO-220F1, TF3: TO-220F (3) G: Halogen Free and Lead Free, L: Lead Free
--	---

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 ($T_C = 25^\circ\text{C}$)	TO-220	P_D	80	W
	TO-220F		36	W
	TO-220F1			
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	TO-220	θ_{JC}	1.56	$^\circ\text{C/W}$
	TO-220F		3.28	$^\circ\text{C/W}$
	TO-220F1			

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)

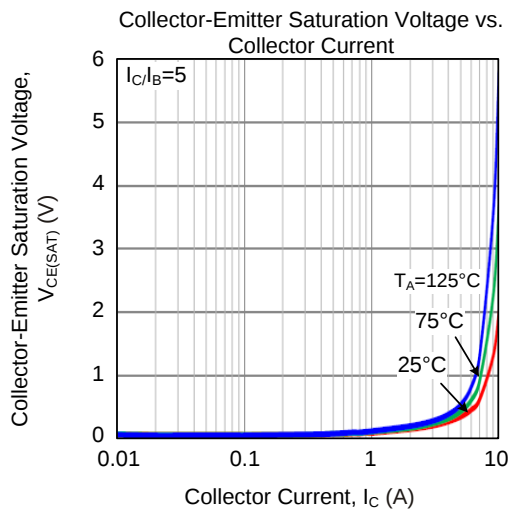
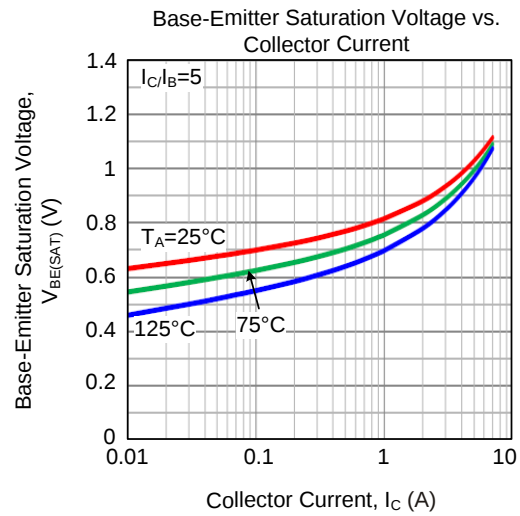
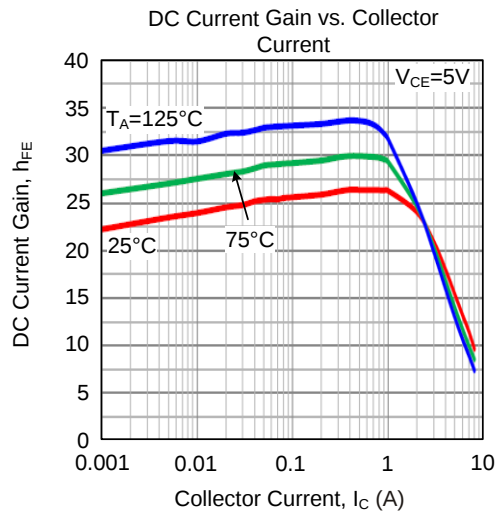
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	$I_C=10\text{mA}$, $I_B=0$	400			V
Collector Cutoff Current	I_{CBO}	$V_{CES}=700\text{V}$			0.1	mA
		$V_{CES}=700\text{V}$, $T_C=125^\circ\text{C}$			1.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=9.0\text{V}$, $I_C=0$			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



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.