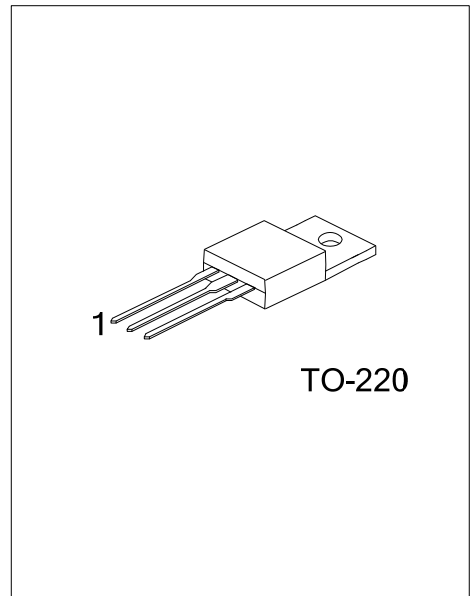




MJE13007D

NPN SILICON TRANSISTOR

NPN BIPOLAR POWER TRANSISTOR FOR SWITCHING POWER SUPPLY APPLICATIONS



DESCRIPTION

The UTC **MJE13007D** is designed for high-voltage, high-speed power switching inductive circuits where fall time is critical. It is particularly suited for 115 and 220V switch mode applications.

FEATURES

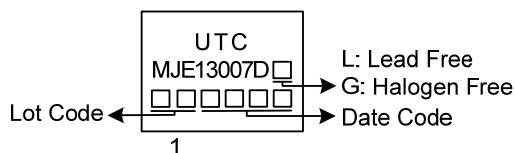
- * $V_{CE(SUS)}$ 400V
- * 700V Blocking Capability

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MJE13007DL-TA3-T	MJE13007DG-TA3-T	TO-220	B	C	E	Tube

<p>MJE13007DG-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 ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Sustaining Voltage	V_{CEO}	400	V
Collector-Emitter Breakdown Voltage	V_{CBO}	700	V
Emitter-Base Voltage	V_{EBO}	9.0	V
Collector Current	Continuous	I_C	8.0
	Peak (1)	I_{CM}	16
Base Current	Continuous	I_B	4.0
	Peak (1)	I_{BM}	8.0
Emitter Current	Continuous	I_E	12
	Peak (1)	I_{EM}	24
Power Dissipation	$T_C = 25^{\circ}\text{C}$	P_D	80
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	$^{\circ}\text{C}/\text{W}$
Junction to Case	θ_{JC}	1.56	$^{\circ}\text{C}/\text{W}$

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

2. 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 specified)

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	$V_{CE(SAT)}$	$I_C=2.0\text{A}, I_B=0.4\text{A}$			1.0	V
		$I_C=5.0\text{A}, I_B=1.0\text{A}$			2.0	V
		$I_C=8.0\text{A}, I_B=2.0\text{A}$			4.0	V
		$I_C=5.0\text{A}, I_B=1.0\text{A}, T_C=100^{\circ}\text{C}$			3.0	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=2.0\text{A}, I_B=0.4\text{A}$			1.2	V
		$I_C=5.0\text{A}, I_B=1.0\text{A}$			1.6	V
		$I_C=5.0\text{A}, I_B=1.0\text{A}, T_C=100^{\circ}\text{C}$			1.5	V
Current-Gain-Bandwidth Product	f_T	$I_C=500\text{mA}, V_{CE}=10\text{V}, f=1.0\text{MHz}$	4.0	14		MHz
Output Capacitance	C_{OB}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$		80		pF
RESISTIVE LOAD (TABLE 1)						
Storage Time	t_s	$I_C=0.5\text{A}, I_B=10\text{mA}, \text{Duty Cycle}\leq 1.0\%$		3.4		μs

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

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