



MJE13005D

NPN SILICON TRANSISTOR

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

DESCRIPTION

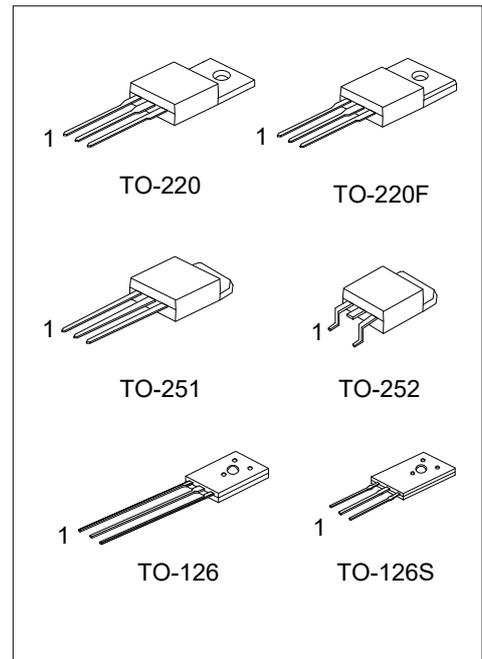
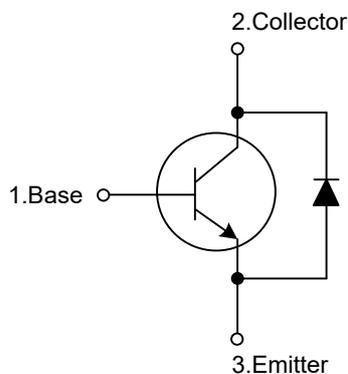
The UTC **MJE13005D** is a high voltage fast-switching NPN power transistor. It is characterized by high breakdown voltage, high current capability, high switching speed and high reliability.

The UTC **MJE13005D** is intended to be used in energy-saving light, electronic ballast, high frequency switching power supply, high frequency power transform or common power amplifier, etc.

FEATURES

- * High Breakdown Voltage
- * High Current Capability
- * High Switching Speed
- * High Reliability
- * RoHS-Compliant Product

INTERNAL SCHEMATIC DIAGRAM



MJE13005D

NPN SILICON TRANSISTOR

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MJE13005DL-TA3-T	MJE13005DG-TA3-T	TO-220	B	C	E	Tube
MJE13005DL-TF3-T	MJE13005DG-TF3-T	TO-220F	B	C	E	Tube
MJE13005DL-TM3-T	MJE13005DG-TM3-T	TO-251	B	C	E	Tube
MJE13005DL-TN3-R	MJE13005DG-TN3-R	TO-252	B	C	E	Tape Reel
MJE13005DL-T60-K	MJE13005DG-T60-K	TO-126	B	C	E	Bulk
MJE13005DL-T6S-K	MJE13005DG-T6S-K	TO-126S	B	C	E	Bulk

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

<p>MJE13005DG-TA3-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel, K: Bulk (2) TA3: TO-220, TF3: TO-220F, TM3: TO-251 TN3: TO-252, T60: TO-126, T6S: TO-126S (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

TO-220 / TO-220F / TO-251 / TO-252	TO-126 / TO-126S

■ ABSOLUTE MAXIMUM RATING (T_C=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATING	UNIT
Collector- Emitter Voltage (V _{BE} =0)		V _{CES}	700	V
Collector-Emitter Voltage (I _B =0)		V _{CEO}	400	V
Emitter-Base Voltage		V _{EBO}	9	V
Collector Current	DC	I _C	4	A
	Pulse	I _{CP}	8	A
Base Current	DC	I _B	2	A
	Pulse	I _{BP}	4	A
Emitter Current	Continuous	I _E	6	A
	Peak (1)	I _{EM}	12	A
Power Dissipation	TO-220	P _D	75	W
	TO-251/TO-252		50	W
	TO-126/TO-126S		45	W
	TO-220F			
Operating and Storage Junction Temperature		T _J , T _{STG}	-65 ~ +150	°C

Notes: 1. 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.

2. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle < 10%.

■ THERMAL DATA

PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient	TO-220/TO-220F	θ _{JA}	62.5	°C/W
	TO-251/TO-252		110	°C/W
	TO-126/TO-126S		89	°C/W
Junction to Case	TO-220	θ _{JC}	1.67	°C/W
	TO-251/TO-252		2.5	°C/W
	TO-126/TO-126S		2.78	°C/W
	TO-220F			

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Breakdown Voltage		BV _{CEO}	I _C =10mA, I _B =0	400			V
Collector -Base Breakdown Voltage		BV _{CBO}	I _C =1mA, I _B =0	700			V
Emitter-Base Breakdown Voltage		BV _{EBO}	I _E =1mA, I _C =0	9			V
Collect Cut-off Current		I _{CBO}	V _{CB} =700V, I _E =0			100	μA
Collect Cut-off Current		I _{CEO}	V _{CE} =400V, I _B =0			50	μA
Emitter Cut-off Current		I _{EBO}	V _{EB} =9V, I _C =0			10	μA
DC Current Gain		h _{FE1}	V _{CE} =5V, I _C =500mA	15		50	
		h _{FE2}	V _{CE} =5V, I _C =2A	5			
Collector-Emitter Saturation Voltage		V _{CE(SAT)}	I _C =1A, I _B =0.2A			0.5	V
			I _C =2A, I _B =0.5A			0.6	V
			I _C =4A, I _B =1A			1	V
			I _C =2A, I _B =0.5A, T _C =100°C			1	V
Base-Emitter Saturation Voltage		V _{BE(SAT)}	I _C =2A, I _B =0.5A			1.6	V
Resistive Load	Fall Time	t _F	V _{CC} =24V, I _C =2A, I _{B1} =-I _{B2} =0.4A			0.7	μs
	Storage Time	t _S				4	μs
Current Gain Bandwidth Product		f _T	V _{CE} =10V, I _C =0.5A	4			MHz
Diode Forward Voltage		V _F	I _F =1A			1.5	V

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