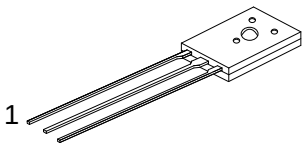
MJE13003D-XS

NPN SILICON TRANSISTOR

NPN SILICON POWER TRANSISTOR



TO-126

■ DESCRIPTION

These devices are designed for high-voltage, high-speed power switching inductive circuits where fall time is critical. They are particularly suited for 115V and 220V applications in switch mode.

■ FEATURES

* 700V blocking capability

■ APPLICATIONS

* Switching regulator's, inverters
* Motor controls
* Solenoid/relay drivers
* Deflection circuits

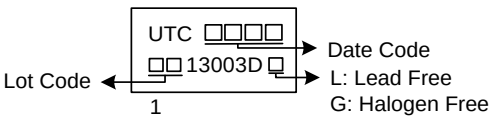
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen-Free		1	2	3	
MJE13003DL-XS-T60-K	MJE13003DG-XS-T60-K	TO-126	B	C	E	Bulk

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

MJE13003DG-XS-T60-K (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) T60: TO-126 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified.)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		$V_{CEO(SUS)}$	400	V
Collector-Base Voltage		V_{CBO}	700	V
Collector-Emitter Voltage (V_{BE}=0)		V_{CES}	700	V
Emitter Base Voltage		V_{EBO}	9	V
Collector Current	Continuous	I_C	1.2	A
	Peak (1)	I_{CM}	2.4	
Power Dissipation	T_A=25°C	P_D	1.4	W
	T_C=25°C		20	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°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.

■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified.)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS (Note)							
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=10mA , I_B=0	400			V
Collector Cutoff Current	T_C=25°C	I_{CEO}	V_{CEO}=Rated Value, $V_{BE(OFF)}$=1.5 V			1	mA
	T_C=100°C					5	
Emitter Cutoff Current		I_{EBO}	V_{EB}=9V, I_C=0			1	mA
ON CHARACTERISTICS (Note)							
DC Current Gain		h_{FE1}	I_C=0.2A, V_{CE}=5V	15		30	V
		h_{FE2}	I_C=1A, V_{CE}=5V	5		30	V
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	I_C=1A, I_B=0.2A			0.6	V
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$	I_C=1A, I_B=0.25A			1.2	V
DYNAMIC CHARACTERISTICS							
Output Capacitance		C_{OB}	V_{CB}=10V, I_E=0, f=0.1MHz		16		pF
SWITCHING CHARACTERISTICS							
Resistive Load (Table 1)							
Delay Time		t_D	V_{CC}=125V, I_C=1A, I_{B1}=I_{B2}=0.2A, t_P=25μs, Duty Cycle≤1%		0.05	0.1	μs
Rise Time		t_R			0.5	1	μs
Storage Time		t_S			2	4	μs
Fall Time		t_F			0.4	0.7	μs
Inductive Load, Clamped (Table 1)							
Storage Time		t_{STG}	I_C=1A, V_{CLAMP}=300V, I_{B1}=0.2A, $V_{BE(OFF)}$=5V_{DC}, T_C=100°C		1.7	4	μs
Crossover Time		t_C			0.29	0.75	μs
Fall Time		t_F			0.15		μs

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

■ TYPICAL CHARACTERISTICS