



PRODUCT SPECIFICATIONS

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TYPE: MJH16012

CASE OUTLINE: TO-218

NPN SILICON HIGH VOLTAGE POWER TRANSISTOR

ABSOLUTE MAXIMUM RATING:

Collector to Base Voltage	BV _{CBO}		Vdc
Collector to Emitter Voltage	BV _{CEV}	850	Vdc
Emitter to Base	BV _{EBO}	6.0	Vdc
Collector to Emitter	BV _{CEO(sus)}	450	Vdc
Continuous Collector Current	I _C	15	Adc
Peak Collector Current	I _{CM}	20	Adc
Power Dissipation T _A = 25 °C	P _D	135	Watts
Power Dissipation T _C = 25 °C	P _D		Watts
Storage Temperature	T _{stg}	-55 to +150	°C
Operating Temperature	T _J	-55 to +150	°C
Lead Temperature From Case	T _L	275	°C

ELECTRICAL CHARACTERISTICS TA @ 25 °C

PARAMETERS	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Voltage	BV _{CBO}					Vdc
Emitter to Base Voltage	BV _{EBO}					Vdc
Collector to Emitter Voltage	BV _{CEO(sus)}	I _C = 100mA I _B = 0	450			Vdc
Collector to Emitter Voltage	BV _{CEO}					Vdc
Collector to Emitter Voltage	BV _{CEV}					Vdc
Collector Cutoff Current	I _{CER}	V _{CE} = 850V R _{BE} = 50Ω T _C = 100°C			2.5	mA
Collector Cutoff Current	I _{CBO}					mA
Collector Cutoff Current	I _{CEV}	V _{CEV} = 850V V _{BE(OFF)} = 1.5V			0.25	mA
Collector Cutoff Current	I _{CEV}	V _{CEV} = 850V V _{BE(OFF)} = 1.5V T _C = 100°C			1.5	mA
Collector Cutoff Current	I _{CEX}					mA
Emitter Cutoff Current	I _{EBO}	V _{EB} = 6.0V			10	mA
D.C. Current Gain Pulsed*	h _{FE}	I _C = 15A V _{CE} = 5.0V	5.0			-
D.C. Current Gain Pulsed*	h _{FE}					-
D.C. Current Gain Pulsed*	h _{FE}					-
D.C. Current Gain Pulsed*	h _{FE}					-
D.C. Current Gain Pulsed*	h _{FE}					-
Saturation Voltage*	V _{CE(sat)}	I _C = 5.0A I _B = 0.7A			2.5	Vdc
Saturation Voltage*	V _{CE(sat)}	I _C = 10A I _B = 1.3A			3.0	Vdc
Saturation Voltage*	V _{CE(sat)}	I _C = 10A I _B = 1.3A T _C = 100°C			3.0	Vdc
Base Emitter Voltage*	V _{BE(sat)}					Vdc
Base Emitter Voltage*	V _{BE(sat)}	I _C = 10A I _B = 1.3A			1.5	Vdc
Base Emitter Voltage*	V _{BE(sat)}	I _C = 10A I _B = 1.3A T _C = 100°C			1.5	Vdc
Base Emitter Voltage*	V _{BE(on)}					Vdc

Notes: *Pulse Width ≤300usec 2% Duty Cycle



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SMALL SIGNAL CHARACTERISTICS

	SYMBOL	MIN	TYP	MAX	UNITS
Current Gain at F =	h_{fe}				-
Input Capacitance	C_{ib}				pf
Output Capacitance $V_{CB} = 10V$ $I_E = 0$ $f_{test} = 1.0\text{KHz}$	C_{ob}			400	pf
Transition Frequency	f_T				MHz
Input Impedance					Ohms
Voltage Feedback Ratio					X10-4
Output Admittance					μmhos
Noise Figure	NF				dB

SWITCHING CHARACTERISTICS

Resistive Load		SYMBOL	MIN	TYP	MAX	UNITS
Storage Time	$I_C = 10A$ $V_{CC} = 250V$	t_s		650		ns
Fall Time	$I_{B1} = 1.3A$	t_f		80		ns
Delay Time	$P_W = 30\mu s$	t_d		20		ns
Rise Time	DC = $\leq 2\%$	t_r		200		ns
Storage Time	$I_{B2} = 2.6A$	t_s		1200		ns
Fall Time	$R_{B2} = 1.6\Omega$	t_f		200		ns
Inductive Load		SYMBOL	MIN	TYP	MAX	UNITS
Storage Time	$I_C = 10A$	t_{sv}		800	1800	ns
Crossover Time	$I_{B1} = 1.3A$	t_c		90	250	ns
Fall Time	$V_{BE(OFF)} = 5.0V$	t_{fi}		50	200	ns
Storage Time	$V_{CE(pk)} = 400V$	t_{sv}		1050		ns
Crossover Time		t_c		120		ns
Fall Time		t_{fi}		70		ns

FUNCTIONAL TEST

	SYMBOL	MIN	TYP	MAX	UNITS
Common-Emitter Amplifier Power Gain	GPE				dB
Power Output	P_{out}				Watt
Collector Efficiency	η				%
Power Output	P_{out}				Watt
Second Breakdown Collector Current	$I_{S/B}$				A
Thermal-Resistance, Junction to Case	$R_{\theta JC}$			0.93	$^{\circ}\text{C/W}$