



HIGH VOLTGE TRANDIDTOR

- * High Collector-Emitter Voltage: $V_{ce0} = 300V$
- * Collector Current: $I_c = 500mA$
- * Collector Dissipation: $P_c = 225mW (T_a = 25^\circ C)$

ABSOLUTE MAXIMUM RATINGS at $T_a = 25^\circ C$

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{cb0}	300	V
Collector-Emitter Voltage	V_{ce0}	300	V
Emitter-Base Voltage	V_{eb0}	6	V
Collector Current	I_c	500	mA
Collector Dissipation $T_a = 25^\circ C$ *	P_D	225	mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55-150	$^\circ C$

Package: SOT-23



PIN:	1	2	3
STYLE			
NO.1	B	E	C

ELECTRICAL CHARACTERISTICS at $T_a = 25^\circ C$

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector-Base Breakdown Voltage	BV_{cb0}	300			V	$I_c = 100\mu A$ $I_e = 0$
Collector-Emitter Breakdown Voltage#	BV_{ce0}	300			V	$I_c = 1mA$ $I_b = 0$
Emitter-Base Breakdown Voltage	BV_{eb0}	6			V	$I_e = 100\mu A$ $I_c = 0$
Collector Cutoff Current	I_{cbo}			100	nA	$V_{cb} = 200V$ $I_e = 0$
Collector Cutoff Current	I_{ebo}			100	nA	$V_{eb} = 6V$ $I_c = 0$
DC Current Gain	H_{fe}	100		200		$V_{ce} = 10V$ $I_c = 10mA$
Collector-Emitter Saturation Voltage	$V_{ce(sat)}$			0.5	V	$I_c = 20mA$ $I_b = 2mA$
Base-Emitter On Voltage	$V_{be(on)}$			0.9	V	$I_c = 20mA$ $I_b = 2mA$
Collector-Base Capacitance	C_{ob}			3	PF	$V_{cb} = 10V$ $I_e = 0$ $f = 1MHz$
Current Gain-Bandwidth Product	f_T	50			MHz	$V_{ce} = 20V$ $I_c = 10mA$ $f = 100MHz$

* Total Device Dissipation : $FR = 1 \times 0.75 \times 0.062in$ Board, Derate $25^\circ C$.

Pulse Test : Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$

DEVICE MARKING: **1D**



MMBTA42

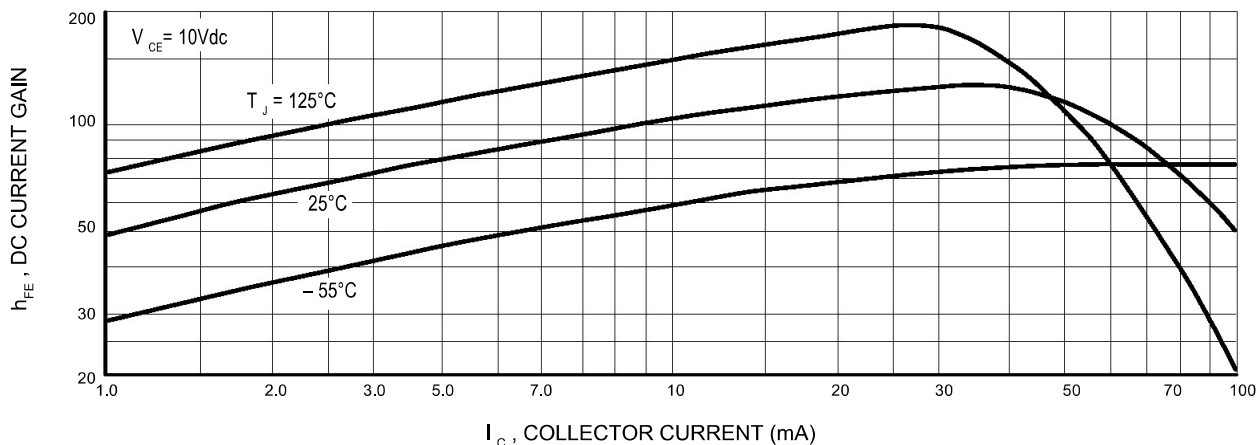


Figure 1. DC Current Gain

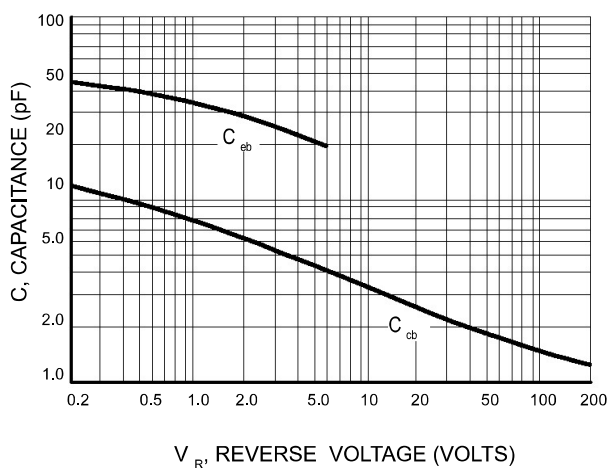


Figure 2. Capacitance

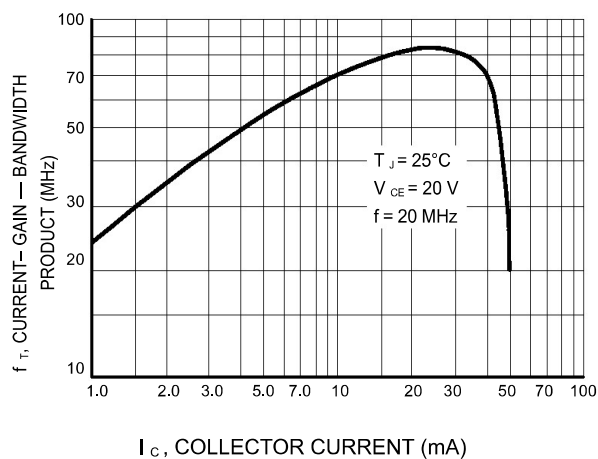


Figure 3. Current-Gain — Bandwidth Product

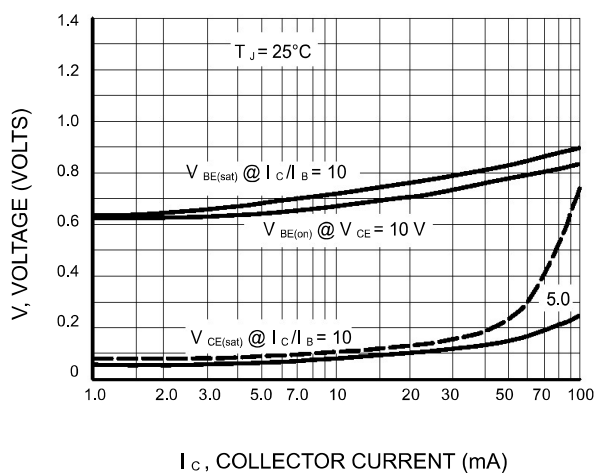
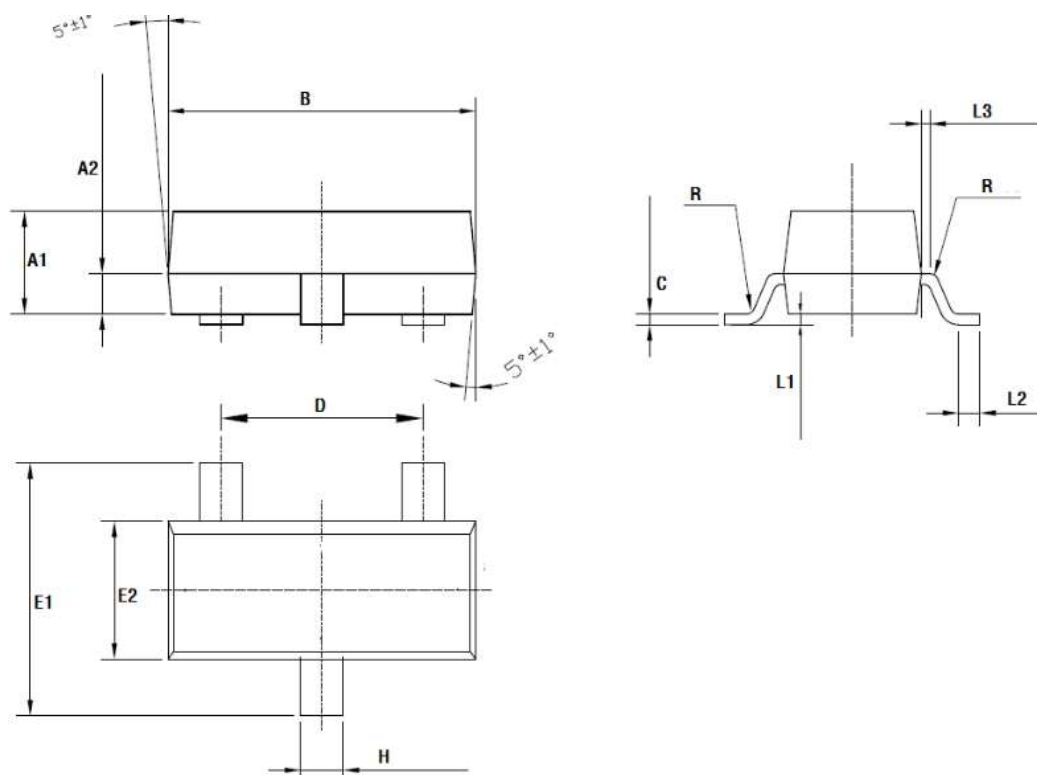


Figure 4. "On" Voltages



Symbol	Dimensions in Millimeters			内部结构 STYLS	管脚 PIN		
	Min	Nominal	Max		1 脚	2 脚	3 脚
A1	0.900	0.950	1.000	6	基极 BASE	发射极 EMITTER	集电极 COLLCTOR
A2	0.350	0.380	0.410				
B	2.800	2.900	3.000	8	阳极 ANODE	不连接 NO- CONNECTION	阴极 CATHODE
C	0.080	0.100	0.150				
D	1.800	1.900	2.000	9	阳极 ANODE	阳极 ANODE	阴极 CATHODE
E1	2.200	2.400	2.600				
E2	1.200	1.300	1.400	11	阳极 ANODE	阴极 CATHODE	阳极-阴极 ANODE-CATHODE
H	0.300	0.400	0.500				
L1	0.000		0.100	12	阴极 CATHODE	阴极 CATHODE	阳极 ANODE
L2	0.200						
L3	0.030	0.080	0.130	18	不连接 NO- CONNECTION	阴极 CATHODE	阳极 ANODE
R	0.080TYP						
				19	阴极 CATHODE	阳极 ANODE	阴极-阳极 CATHODE-ANODE