



## MMBTA13

Preliminary

**NPN EPITAXIAL SILICON TRANSISTOR**

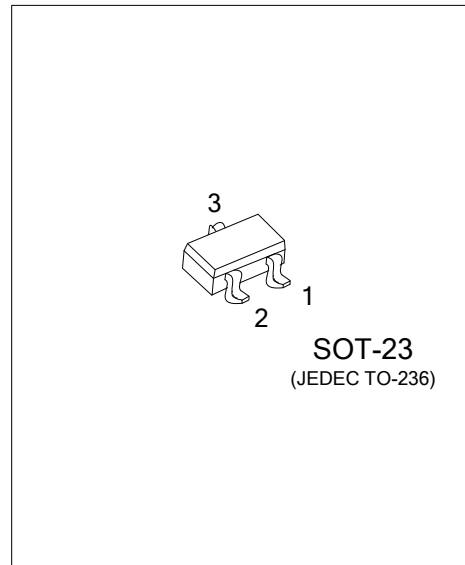
## DARLINGTON TRANSISTOR

### DESCRIPTION

The UTC **MMBTA13** is a Darlington transistor.

### FEATURES

- \* Collector-Emitter Voltage:  $V_{CES} = 30V$
- \* Collector Dissipation:  $P_{C(MAS)} = 350 \text{ mW}$



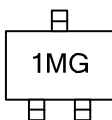
### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
MMBTA13G-AE3-R	SOT-23	E	B	C	Tape Reel

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

<p>MMBTA13G-AE3-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free</p>
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### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CBO}$	30	V
Collector-Emitter Voltage	$V_{CES}$	30	V
Emitter-Base Voltage	$V_{EBO}$	10	V
Collector Dissipation	$V_{EBO}$	350	mW
Collector Current	$I_C$	500	mA
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.

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Breakdown Voltage	$BV_{CES}$	$I_C=100\mu\text{A}$ , $I_B=0$	30			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30\text{V}$ , $I_E=0$			100	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=10\text{V}$ , $I_C=0$			100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=5\text{V}$ , $I_C=100\text{mA}$	10000			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=100\text{mA}$ , $I_B=0.1\text{mA}$			1.5	V
Base-Emitter on Voltage	$V_{BE(ON)}$	$V_{CE}=5\text{V}$ , $I_C=100\text{mA}$			2.0	V
Current Gain Bandwidth Product	$f_T$	$V_{CE}=5\text{V}$ , $I_C=10\text{mA}$ , $f=100\text{MHz}$	125			MHz

Note: Pulse test: Pulse Width<300 $\mu\text{s}$ , Duty Cycle=2%

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