# **MMBT6427**

# **General Purpose NPN Transistor**



# Darlington Amplifier

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- High Current Gain
- Lead Free/RoHS Compliant

### **Mechanical Data**

- Case:Molded Plastic,SOT-23
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable perMIL-STD-750,Method-2026.
- Marking: K1D
- Mounting Position : Any.
- Equivalent Circuit:

0.012 (0.3) (0.2) (0.





Dimensions in inches and (millimeters)

# Maximum Ratings Maximum Ratings (Rating at 25°C ambient temperature unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	40	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter-Base Voltage	V <sub>EBO</sub>	12	V
Collector Current - Continuous	Ι <sub>C</sub>	500	mA
Power Dissipation (Note 2) @ T <sub>A</sub> = 25	Pd	300	mW
Thermal Resistance, Junction to Ambient (Note 2)@ $T_A = 25$	R JA	417	C/W
Operating and Storage Temperature Range	Tj, T <sub>STG</sub>	-55 to +150	С

#### Electrical Characteristics (Rating at 25°C ambient temperature unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition		
OFF CHARACTERISTICS (Note 3)							
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	40		V	$I_{\rm C} = 100$ A, $I_{\rm E} = 0$		
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	40		V	$I_{\rm C} = 10 {\rm mA}, I_{\rm B} = 0$		
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	12		V	$I_{\rm E} = 10$ A, $I_{\rm C} = 0$		
Collector Cutoff Current	I <sub>CBO</sub>		50	nA	$V_{CB} = 30V, I_E = 0$		
Collector Cutoff Current	I <sub>CEO</sub>		1.0	А	$V_{CE} = 25V, I_B = 0$		
Emitter Cutoff Current	I <sub>EBO</sub>		50	nA	$V_{EB} = 10V, I_C = 0$		
ON CHARACTERISTICS (Note 3)							
DC Current Gain	h <sub>FE</sub>	10,000 20,000 14,000	100,000 200,000 140,000		$ \begin{array}{ll} I_C = & 10mA,  V_{CE} = & 5.0V \\ I_C = & 100mA,  V_{CE} = & 5.0V \\ I_C = & 500mA,  V_{CE} = & 5.0V \end{array} $		
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>		1.2 1.5	V	$\begin{array}{ll} I_C = & 50 \text{mA}, \ I_B = 0.5 \text{mA} \\ I_C = 500 \text{mA}, \ I_B = 0.5 \text{mA} \end{array}$		
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>		2.0	V	$I_{C} = 500 \text{mA}, I_{B} = 0.5 \text{mA}$		
Base-Emitter On Voltage	V <sub>BE(ON)</sub>		1.75	V	I <sub>C</sub> = 50mA, V <sub>CE</sub> =5.0V		
SMALL SIGNAL CHARACTERISTICS							
Output Capacitance	C <sub>obo</sub>	8.0 Typical		pF	$V_{CB} = 10V, f = 1.0MHz, I_E = 0$		
Input Capacitance	C <sub>ibo</sub>	15 T	ypical	pF	$V_{EB} = 0.5V, f = 1.0MHz, I_{C} = 0$		

<u>SOT-23</u>

0.020 (0.5)



1000

100

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### **Rating And Characteristic Curves**



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