

SILICON MULTI-EPITAXIAL NPN TRANSISTOR

2N6059

- High Current Capability.
- Hermetic TO3 Metal package.
- Screening Options Available.



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{CBO}	Collector – Base Voltage	100V
V_{CEO}	Collector – Emitter Voltage	100V
V_{EBO}	Emitter – Base Voltage	5V
I_C	Continuous Collector Current	12A
I_B	Base Current	0.2A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above 25°C	150W 1.00W/ $^\circ\text{C}$
T_J	Junction Temperature Range	-55 to +175 $^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55 to +175 $^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			1.00	$^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
I_{CEO}	Collector-Emitter Cut-Off Current	$V_{CE} = 50\text{V}$			1.0	mA
I_{CEX}	Collector-Emitter Cut-Off Current	$V_{CE} = 100\text{V}$ $V_{BE} = 1.5\text{V}$			10	μA
		$T_C = 150^\circ\text{C}$			5	mA
I_{EBO}	Emitter-Base Cut-Off Current	$V_{EB} = 5\text{V}$			2	mA
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 100\text{mA}$	100			V
V_{BE}	Base-Emitter Voltage (nonsaturated)	$I_C = 6\text{A}$ $V_{CE} = 3\text{V}$			2.8	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 12\text{A}$ $I_B = 120\text{mA}$			4	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 12\text{A}$ $I_B = 120\text{mA}$			3	
		$I_C = 6\text{A}$ $I_B = 24\text{mA}$			2	
		$T_C = 150^\circ\text{C}$			2	
$h_{FE}^{(1)}$	Forward-Current Transfer Ratio	$I_C = 1.0\text{A}$ $V_{CE} = 3\text{V}$	1000			
		$I_C = 6\text{A}$ $V_{CE} = 3\text{V}$	1000		18000	
		$T_C = -55^\circ\text{C}$	300			
		$I_C = 12\text{A}$ $V_{CE} = 3\text{V}$	150			

DYNAMIC CHARACTERISTICS

$ h_{fe} $	Magnitude of Common-Emitter Small Signal Forward Current Transfer Ratio	$I_C = 5\text{A}$ $V_{CE} = 3\text{V}$ $f = 1.0\text{MHz}$	10		250	
h_{fe}	Small Signal Forward-Current Transfer Ratio	$I_C = 5\text{A}$ $V_{CE} = 3\text{V}$ $f = 1.0\text{kHz}$	1000			
C_{obo}	Output Capacitance	$f = 1.0\text{MHz}$ $V_{CB} = 10\text{V}$ $I_E = 0$			300	μF
t_{on}	Turn-On Time	$I_C = 5\text{A}$ $V_{CC} = 30\text{V}$ $I_B = 20\text{mA}$			2	μs
t_{off}	Turn-Off Time	$I_C = 5\text{A}$ $V_{CC} = 30\text{V}$ $I_B = 20\text{mA}$			10	

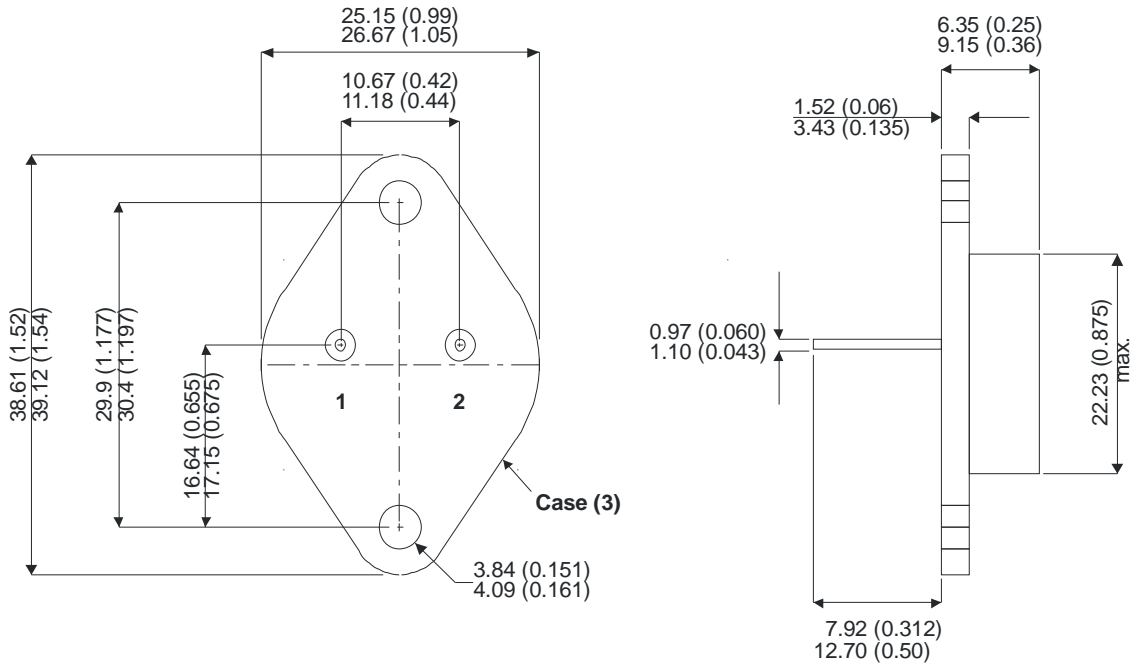
Notes

(1) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$

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MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA) METAL PACKAGE Underside View

Pin 1 - Base

Pin 2 - Emitter

Case - Collector