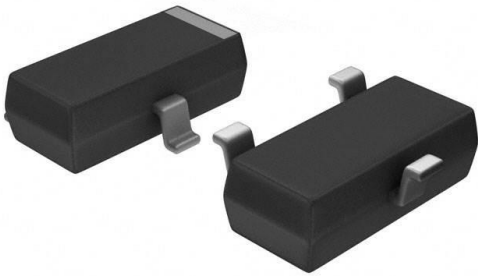


MMBT2369 Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	MMBT2369-DG
Manufacturer	onsemi
Manufacturer Product Number	MMBT2369
Description	TRANS NPN 15V 0.2A SOT23-3
Detailed Description	Bipolar (BJT) Transistor NPN 15 V 200 mA 350 mW Surface Mount SOT-23-3



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

MMBT2369

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

15 V

Current - Collector Cutoff (Max):

30 μ A (ICBO)

Power - Max:

350 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

MMBT2369

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

200 mA

Vce Saturation (Max) @ Ib, Ic:

250mV @ 1mA, 10mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

40 @ 10mA, 1V

Frequency - Transition:

-

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-23-3

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0095



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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

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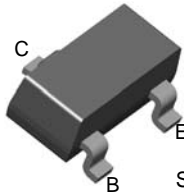


February 2008

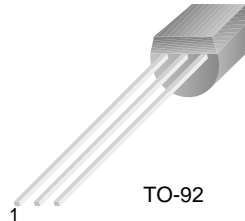
MMBT2369 / PN2369 NPN Switching Transistor

- This device is designed for high speed saturated switching at collector currents of 10mA to 100mA.
- Sourced from process 21.

MMBT2369

SOT-23
Mark: 1J

PN2369

TO-92
1. Emitter 2. Base 3. Collector

Absolute Maximum Ratings * $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CE0}	Collector-Emitter Voltage	15	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	4.5	V
I_C	Collector Current - Continuous	200	mA
I_{CP}	**Collector Current (Pulse)	400	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ 150	$^\circ\text{C}$

* This ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

** Pulse Test: Pulse Width \leq 300ms, Duty Cycle \leq 2.0%

NOTES:

- 1) These rating are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

* Device mounted on FR-4PCB 1.6" \times 1.6" \times 0.06".

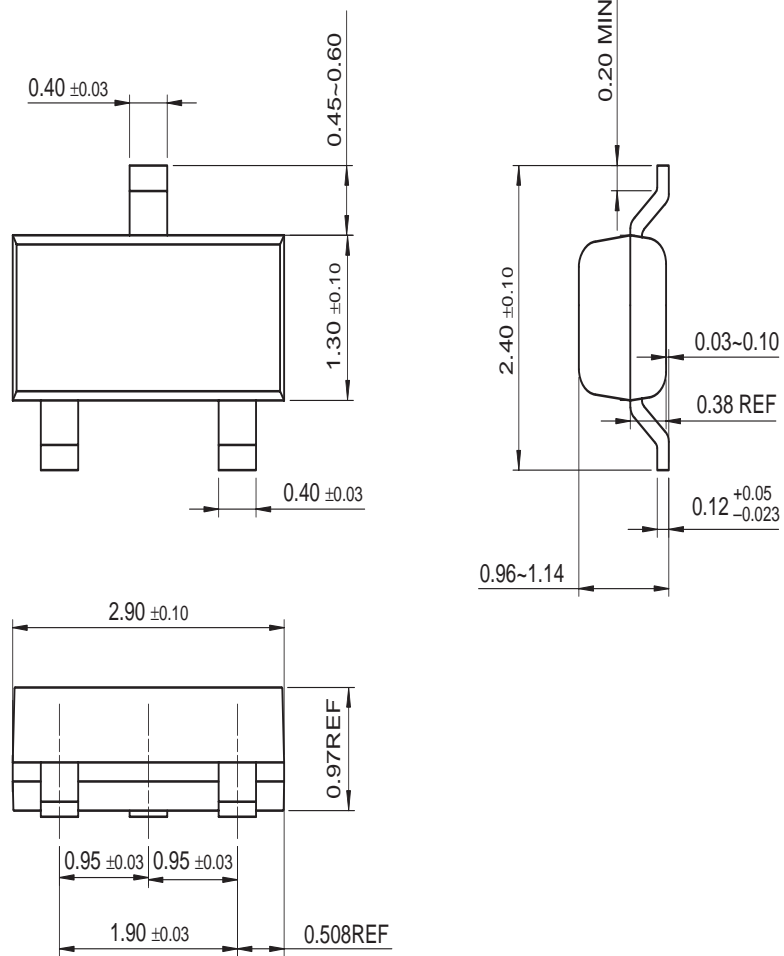
Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = 10\text{mA}, I_B = 0$	15		V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 10\mu\text{A}, V_{BE} = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}, I_C = 0$	4.5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 20\text{V}, I_E = 0$ $V_{CB} = 20\text{V}, I_E = 0, T_a = 125^\circ\text{C}$		0.4 30	μA μA
On Characteristics					
h_{FE}	DC Current Gain *	$I_C = 10\text{mA}, V_{CE} = 1.0\text{V}$ $I_C = 100\text{mA}, V_{CE} = 2.0\text{V}$	40 20	120	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage *	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$		0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$	0.7	0.85	V
Small Signal Characteristics					
C_{obo}	Output Capacitance	$V_{CB} = 5.0\text{V}, I_E = 0, f = 1.0\text{MHz}$		4.0	pF
C_{ibo}	Input Capacitance	$V_{EB} = 0.5\text{V}, I_C = 0, f = 1.0\text{MHz}$		5.0	pF
h_{fe}	Small -Signal Current Gain	$I_C = 10\text{mA}, V_{CE} = 10\text{V}, R_G = 2.0\text{k}\Omega,$ $f = 100\text{MHz}$	5.0		
Switching Characteristics					
t_s	Storage Time	$I_{B1} = I_{B2} = I_C = 10\text{mA}$		13	ns
t_{on}	Turn-On Time	$V_{CC} = 3.0\text{V}, I_C = 10\text{mA}, I_{B1} = 3.0\text{mA}$		12	ns
t_{off}	Turn-Off Time	$V_{CC} = 3.0\text{V}, I_C = 10\text{mA}, I_{B1} = 3.0\text{mA},$ $I_{B2} = 1.5\text{mA}$		18	ns

* Pulse Test: Pulse Width $\leq 300\text{ms}$, Duty Cycle $\leq 2.0\%$

Package Dimensions

SOT-23

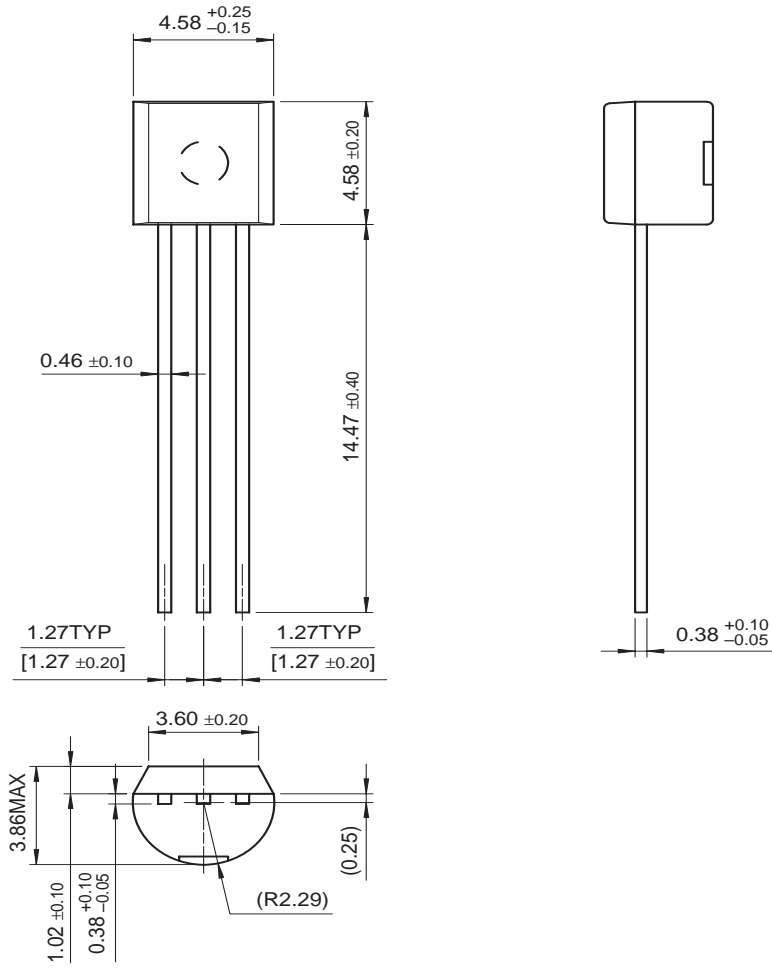


Dimensions in Millimeters

MMBT2369 / PN2369 — NPN Switching Transistor

Package Dimensions (Continued)

TO-92






Dimensions in Millimeters



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