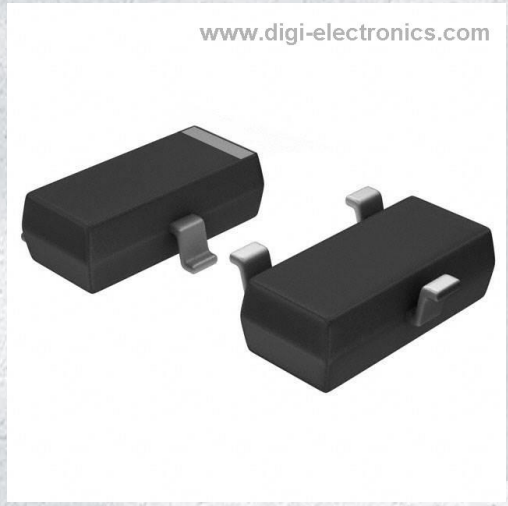
MMBT2369 Datasheet



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

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MMBT2369	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	200 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
15 V	250mV @ 1mA, 10mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
30µA (ICBO)	40 @ 10mA, 1V
Power - Max:	Frequency - Transition:
350 mW	-
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SOT-23-3
Base Product Number:	
MMBT2369	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	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.

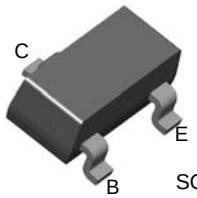
FAIRCHILD SEMICONDUCTOR®

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.

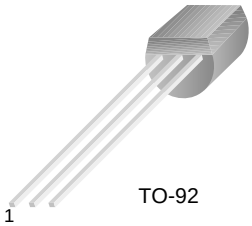
MMBT2369



SOT-23

Mark: 1J

PN2369



TO-92

1

1. Emitter 2. Base 3. Collector

Absolute Maximum Ratings * T_a = 25×C unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CEO}	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	°C

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

** Pulse Test: Pulse Width £ 300ms, Duty Cycle £ 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°C unless otherwise noted

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

* Device mounted on FR-4PCB 1.6” ¥ 1.6” ¥ 0.06”.

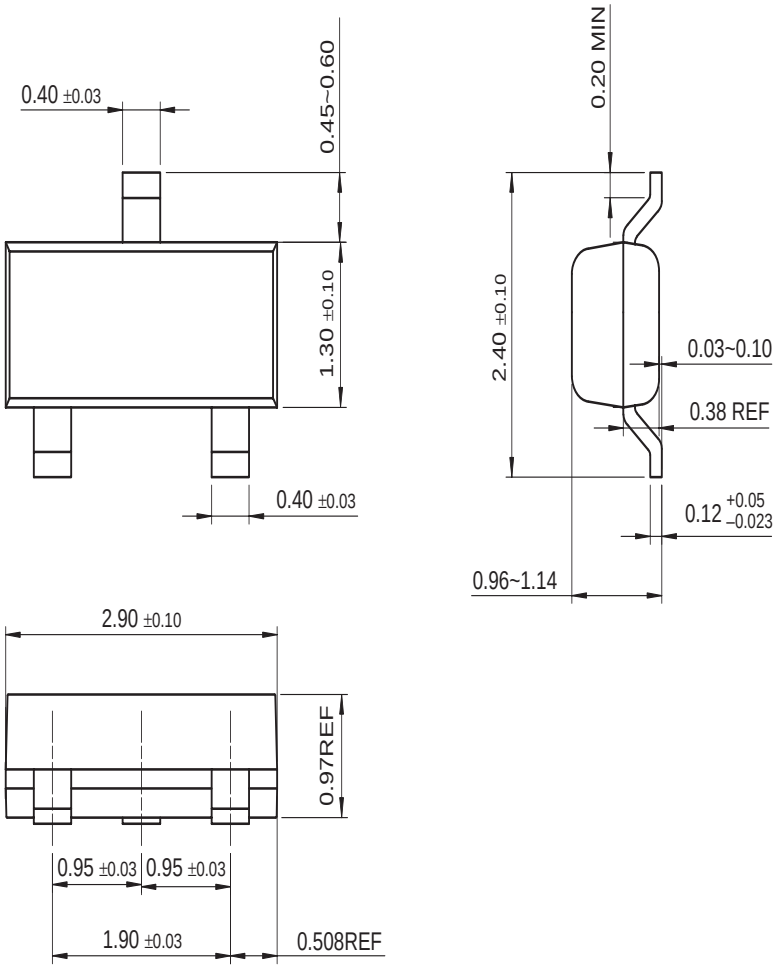
Electrical Characteristics T_a = 25°C unless otherwise noted

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

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

Package Dimensions

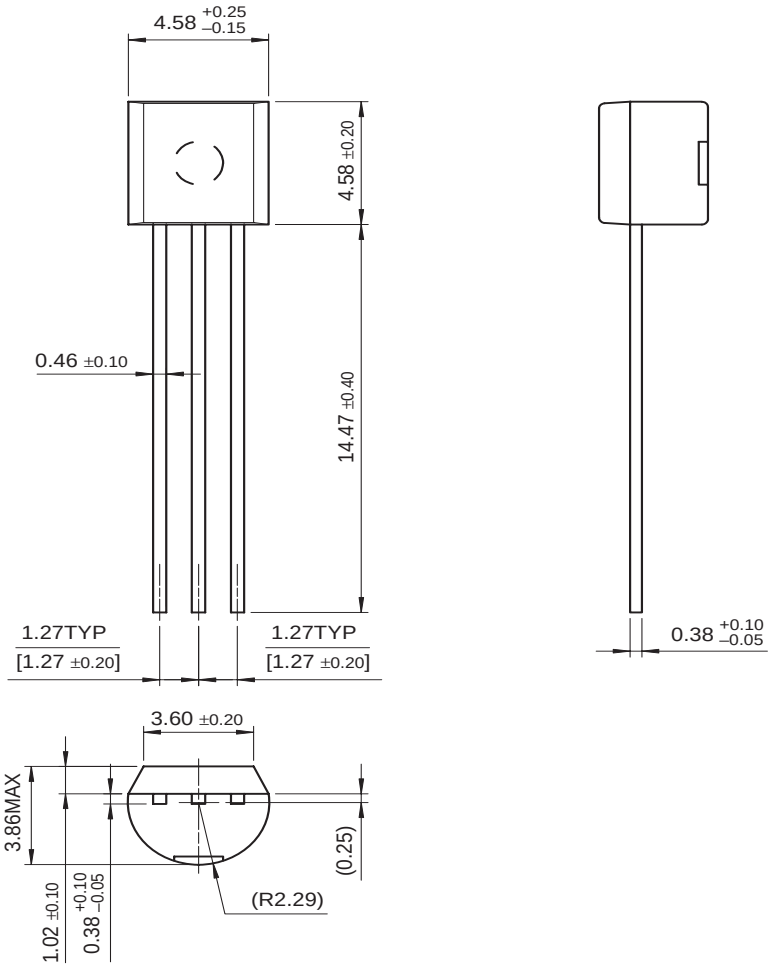
SOT-23



Dimensions in Millimeters

Package Dimensions (Continued)

TO-92



Dimensions in Millimeters

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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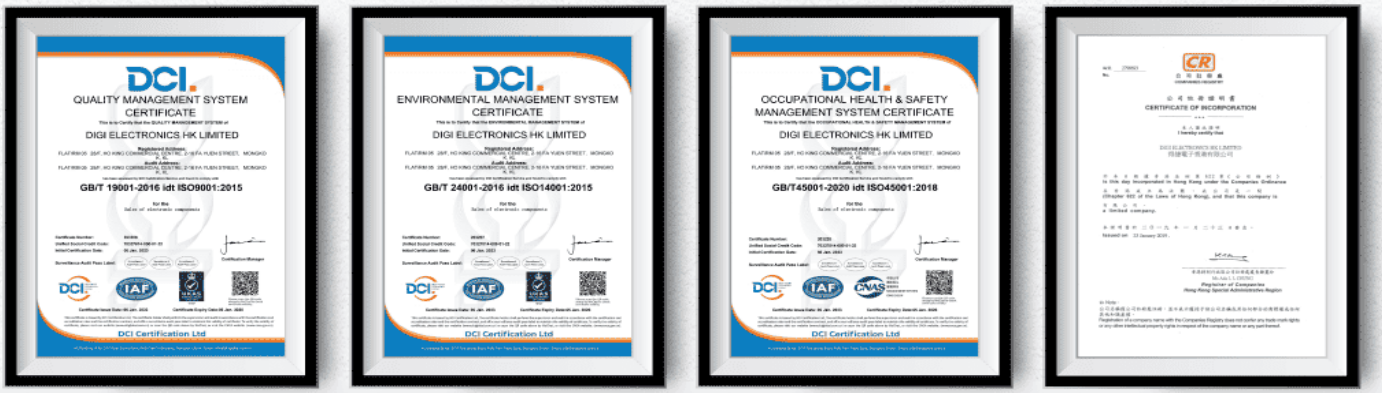

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