6 Lake Street, Lawrence, MA 01841
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803
Website: http: //www.microsemi.com

TECHNICAL DATA SHEET

NPN POWER SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/560

DEVICES

2N5339 2N5339U3

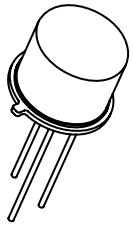
LEVELS

JAN
JANTX
JANTXV
JANS

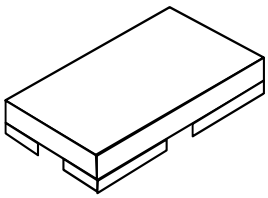
ABSOLUTE MAXIMUM RATINGS (T_C = +25°C unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	100	Vdc
Collector-Base Voltage	V_{CBO}	100	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	Vdc
Base Current	I_B	1.0	Adc
Collector Current	I_C	5.0	Adc
Total Power Dissipation @ T_A = +25°C (1) @ T_C = +25°C (2) @ T_C = +25°C (3) – U3	P_T	1.0 17.5 75	W
Operating & Storage Junction Temperature Range	T_{op} , T_{stg}	-65 to +200	°C
Thermal Resistance, Junction-to Air	$R_{\theta JA}$	175	°C/W

1) Derate linearly 5.71mW/°C for T_A > 25°C
2) Derate linearly 100mW/°C for T_C > 25°C
3) Derate linearly 434mW/°C for T_C > 25°C – U3



TO-39
(TO-205AD)



U-3
(TO-276AA)

ELECTRICAL CHARACTERISTICS *(T_A = +25°C, unless otherwise noted)*

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage I_C = 50mAdc	$V_{(BR)CEO}$	100		Vdc
Collector-Emitter Cutoff Current V_{CE} = 100Vdc	I_{CEO}		100	µAdc
Collector-Emitter Cutoff Current V_{CE} = 90Vdc, V_{BE} = 1.5Vdc	I_{CEX}		1.0	µAdc
Collector-Base Cutoff Current V_{CB} = 100Vdc	I_{CBO}		1.0	µAdc
Emitter-Base Cutoff Current V_{EB} = 6.0Vdc	I_{EBO}		100	µAdc

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ELECTRICAL CHARACTERISTICS ***(T_A = +25°C, unless otherwise noted)*** **(CONT.)**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)				
Forward-Current Transfer Ratio I_C = 0.5Adc, V_{CE} = 2.0Vdc I_C = 2.0Adc, V_{CE} = 2.0Vdc I_C = 5.0Adc, V_{CE} = 2.0Vdc	h_{FE}	60 60 40	240	
Collector-Emitter Saturation Voltage I_C = 2.0Adc, I_B = 0.2Adc I_C = 5.0Adc, I_B = 0.5Adc	$V_{CE(sat)}$		0.7 1.2	Vdc
Base-Emitter Saturation Voltage I_C = 2.0Adc, I_B = 0.2Adc I_C = 5.0Adc, I_B = 0.5Adc	$V_{BE(sat)}$		1.2 1.8	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 0.5Adc, V_{CE} = 10Vdc, f = 10MHz	$\|h_{fe}\|$	3.0	15	
Output Capacitance V_{CB} = 10Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz	C_{obo}		250	pF
Input Capacitance V_{BE} = 2.0Vdc, I_C = 0, 100kHz ≤ f ≤ 1.0MHz	C_{ibo}		1,000	pF

SAFE OPERATING AREA

DC Tests

T_C = +25°C, 1 Cycle, t ≥ 0.5s

Test 1

V_{CE} = 2.0Vdc, I_C = 5.0Adc

Test 2

V_{CE} = 5.0Vdc, I_C = 2.0Adc

Test 3

V_{CE} = 90Vdc, I_C = 55mAdc

(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%