ON Semiconductor

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Preferred Device

VHF/UHF Transistor

NPN Silicon

Features

• Pb-Free Package is Available

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	V _{CEO}	25	Vdc
Collector-Base Voltage	V _{CBO}	30	Vdc
Emitter-Base Voltage	V _{EBO}	3.0	Vdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board T _A = 25°C Derate above 25°C	P _D (Note 1)	225 1.8	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, T _A = 25°C Derate above 25°C	P _D (Note 2)	300 2.4	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	625	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C

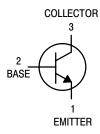
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- 1. $FR-5 = 1.0 \times 0.75 \times 0.062$ in.
- 2. Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina



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SC-59 CASE 318D STYLE 1

MARKING DIAGRAM



14A = Specific Device Code

M = Date Code*

=Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location

ORDERING INFORMATION

	Device	Package	Shipping [†]
N	/ISD2714AT1	SC-59	3000 / Tape & Reel
N	//SD2714AT1G	SC-59 (Pb-Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Preferred devices are recommended choices for future use and best overall value.

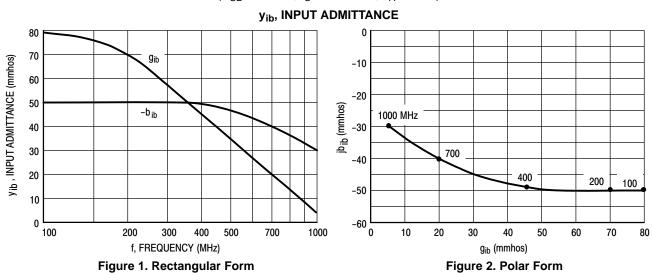
ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage (I _C = 1.0 mAdc, I _B = 0)	V _{(BR)CEO}	25	-	-	Vdc
Collector – Base Breakdown Voltage $(I_C = 10 \mu Adc, I_E = 0)$	V _{(BR)CBO}	30	-	-	Vdc
Emitter – Base Breakdown Voltage ($I_E = 10 \mu Adc$, $I_C = 0$)	V _{(BR)EBO}	3.0	-	-	Vdc
Collector Cutoff Current (V _{CB} = 35 Vdc, I _E = 0)	I _{CBO}	_	-	500	nAdc
Emitter Cutoff Current (V _{EB} = 3.5 Vdc, I _C = 0)	I _{EBO}	_	_	500	nAdc
ON CHARACTERISTICS					
DC Current Gain (I _C = 1.0 mAdc, V _{CE} = 6.0 Vdc)	h _{FE}	90	_	180	_
Base – Emitter On Voltage ($I_C = 4.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	V _{BE}	_	_	0.95	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current–Gain – Bandwidth Product ($I_C = 4.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 100 \text{ MHz}$)	f _T	650	-	-	MHz
Collector–Base Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 1.0 MHz)	C _{cb}	_	-	0.7	pF
Common–Base Feedback Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 1.0 MHz)	C _{rb}	_	-	0.65	pF
Collector Base Time Constant (I _C = 4.0 mAdc, V _{CB} = 10 Vdc, f = 31.8 MHz)	rb′C _c	_	-	9.0	ps

TYPICAL CHARACTERISTICS

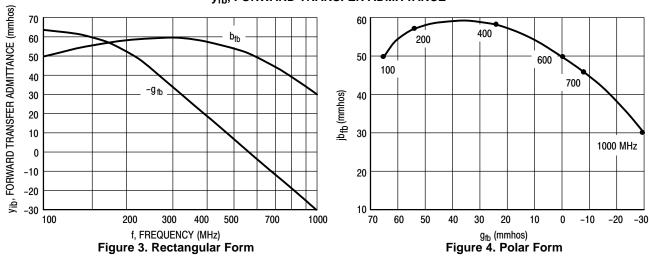
COMMON-BASE y PARAMETERS versus FREQUENCY

 $(V_{CB} = 10 \text{ Vdc}, I_C = 4.0 \text{ mAdc}, T_A = 25^{\circ}\text{C})$



TYPICAL CHARACTERISTICS

y_{fb}, FORWARD TRANSFER ADMITTANCE



COMMON-BASE y PARAMETERS versus FREQUENCY

 $(V_{CB} = 10 \text{ Vdc}, I_C = 4.0 \text{ mAdc}, T_A = 25^{\circ}\text{C})$

y_{rb}, REVERSE TRANSFER ADMITTANCE

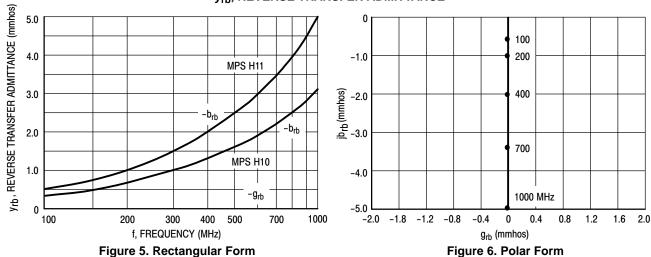
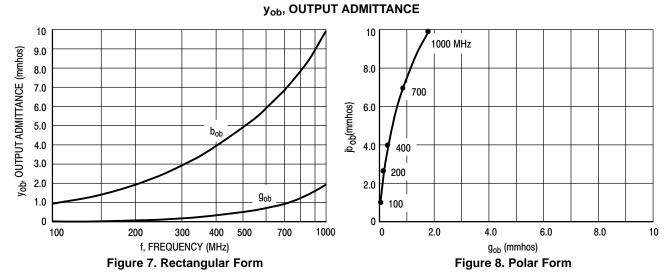
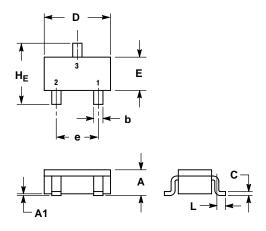


Figure 5. Rectangular Form



PACKAGE DIMENSIONS

SC-59 CASE 318D-04 **ISSUE G**



DIMENSIONING AND TOLERANCING PER ANSI

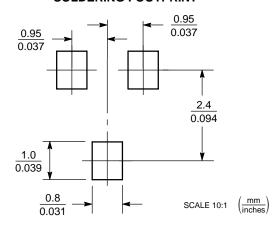
Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	1.00	1.15	1.30	0.039	0.045	0.051
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.35	0.43	0.50	0.014	0.017	0.020
С	0.09	0.14	0.18	0.003	0.005	0.007
D	2.70	2.90	3.10	0.106	0.114	0.122
Е	1.30	1.50	1.70	0.051	0.059	0.067
a	1.70	1.90	2.10	0.067	0.075	0.083
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.80	3.00	0.099	0.110	0.118

STYLE 1: PIN 1. EMITTER

2. BASE 3. COLLECTOR

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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