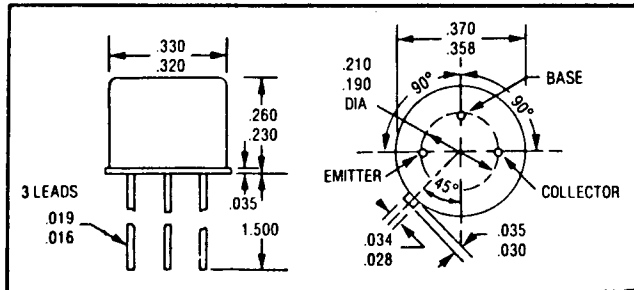


X00113

SSDII

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2N5013 THRU 2N5015**500 mA****HIGH VOLTAGE NPN TRANSISTOR
800—1000 VOLTS****CASE STYLE W****JEDEC TO-5****FEATURES**

- BV_{CER} AND BV_{CBO} TO 1000 VOLTS
- LOW SATURATION VOLTAGE
- LOW LEAKAGE AT HIGH TEMPERATURE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- 2N5010 THRU 2N5012 ALSO AVAILABLE

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage, $R_{BE} = 1K \text{ Ohms}$			Volts
2N5013	V_{CER}	800	
2N5014		900	
Collector - Base Voltage	V_{CBO}	1000	
2N5015			
Emitter - Base Voltage	V_{EBO}	5	Volts
Collector Current	I_C	500	m Amps
Base Current	I_B	50	m Amps
Total Device Dissipation @ $T_C = 100^\circ C$	P_D	2	Watts
Derate above 100 °C		20	mW/°C
Operating and Storage Temperature	T_j, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage*				Vdc
2N5013		800		
2N5014		900		
($I_C = 200 \text{ uAdc}, R_{BE} = 1 K \text{ ohms}$)	BV_{CER}^*	1000		
Collector - Base Breakdown Voltage				Vdc
2N5013		800		
2N5014		900		
($I_C = 200 \text{ uAdc}$)	BV_{CBO}	1000		
Emitter - Base Breakdown Voltage				Vdc
($I_E = 50 \text{ uAdc}$)	BV_{EBO}	5		

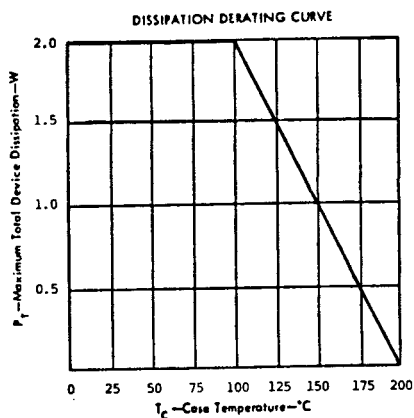
ELECTRICAL CHARACTERISTICS

Characteristics			Symbol	Min.	Max.	Unit
Collector Cutoff Current	(VCB = 650 Vdc)	2N5013	I _{CBO}		12**	uAdc
	(VCB = 700 Vdc)	2N5014				
	(VCB = 750 Vdc)	2N5015				
Collector Cutoff Current	(VCB = 650 Vdc, TA=100°C)	2N5013	I _{CBO}		100**	uAdc
	(VCB = 700 Vdc, TA=100°C)	2N5014				
	(VCB = 750 Vdc, TA=100°C)	2N5015				
DC Current Gain*			h _{FE}	25 30	180	
(I _C = 5 mAdc, V _{CE} = 10 Vdc)						
(I _C = 20 mAdc, V _{CE} = 10 Vdc)						
Collector - Emitter Saturation Voltage*			V _{CE (SAT)}		1.6 1.6 1.8	Vdc
(I _C = 20 mAdc, I _B = 5 mAdc)		2N5013				
		2N5014				
		2N5015				
Base - Emitter Saturation Voltage*			V _{BE (SAT)}		1.0	Vdc
(I _C = 20 mAdc, I _B = 5 mAdc)						
Current - Gain - Bandwith Product			f _T	25		MHz
(I _C = 20 mAdc, V _{CE} = 10 Vdc, f = 1 MHz)						
Output Capacitance			C _{ob}		25	pf
(V _{CB} = 10 Vdc, I _E = 0, f = 5 MHz)						
Delay Time	(V _{CC} = 125 Vdc,		t _d		200	ns
Rise Time	I _C = 100 mAdc,		t _r		1200	ns
Storage Time			t _s		3.0	us
Fall Time			t _f		800	ns
		I _{B1} = I _{B2} = 10 mAdc)				

*Pulse Test: Pulse width = 300 us, DutyCycle = 2%

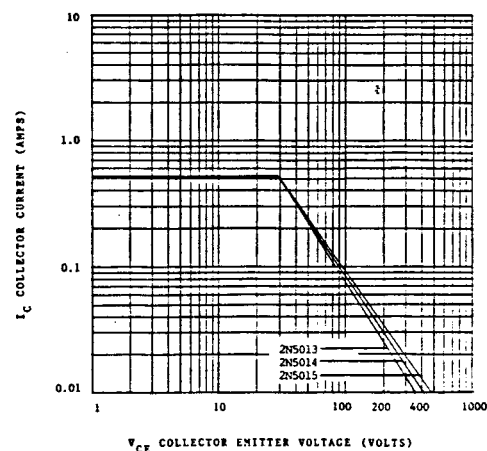
**Typically 1 uA

TYPICAL OPERATING CURVES



FORWARD BIAS DC SAFE OPERATION AREA (S.O.A. CURVE)

CURVES APPLY BELOW RATED V_{CEO} $T_C = 25^\circ\text{C}$



SSDII SOLID STATE DEVICES, INC.