

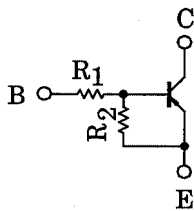
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

## RN2114,RN2115,RN2116 RN2117,RN2118

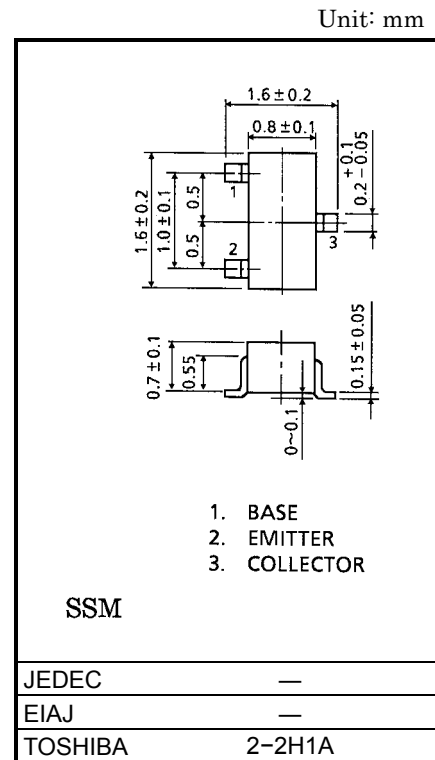
Switching, Inverter Circuit, Interface Circuit  
And Driver Circuit Applications

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1114~RN1118

### Equivalent Circuit and Bias Resister Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2114	1	10
RN2115	2.2	10
RN2116	4.7	10
RN2117	10	4.7
RN2118	47	10



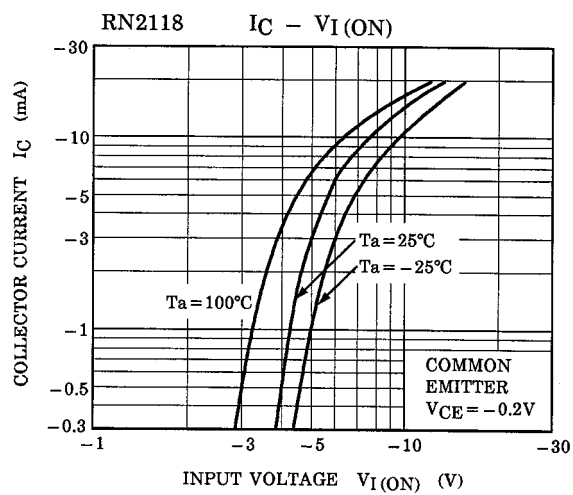
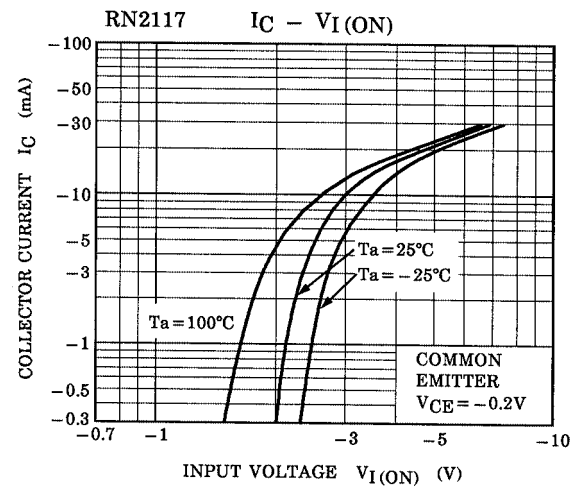
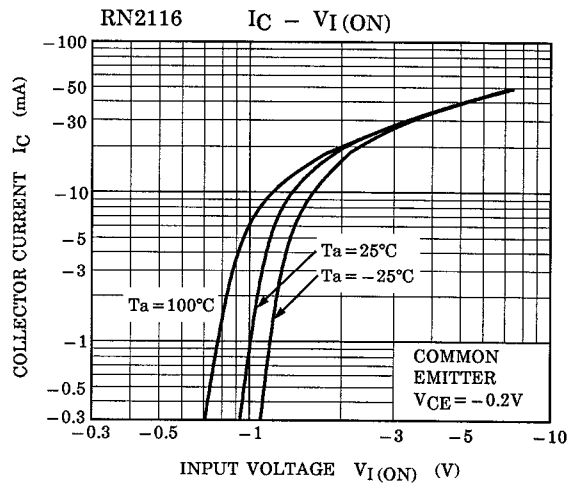
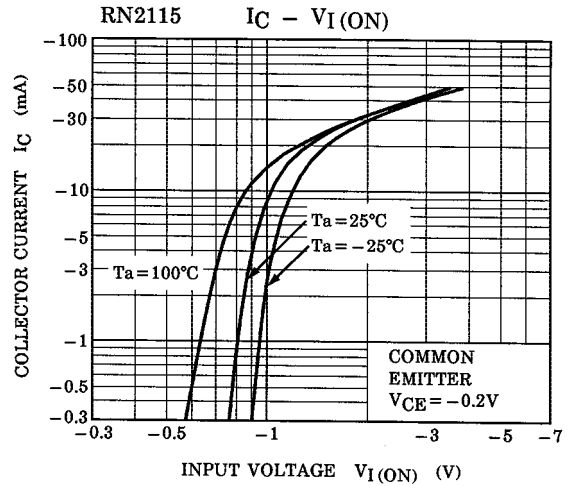
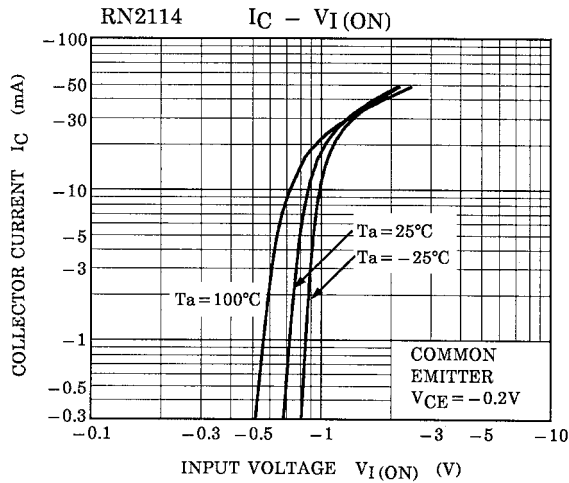
Weight: 2.4mg

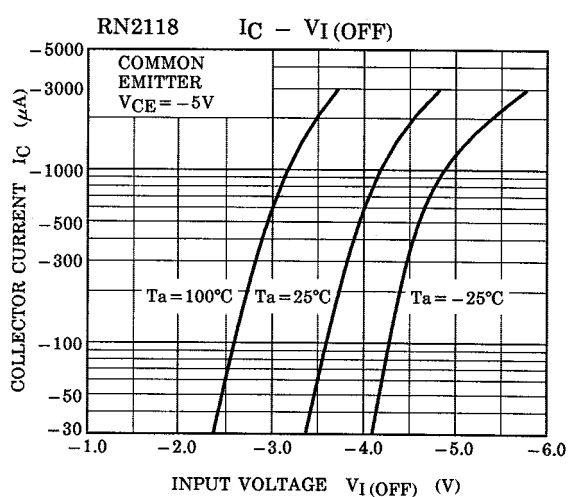
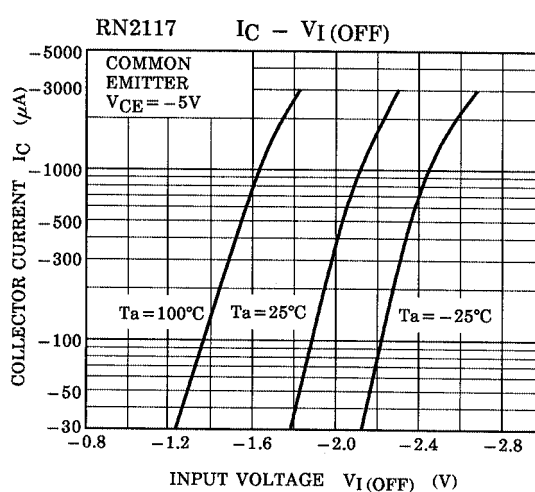
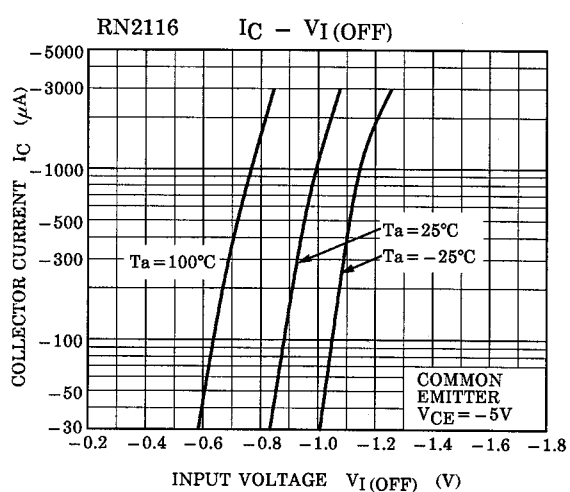
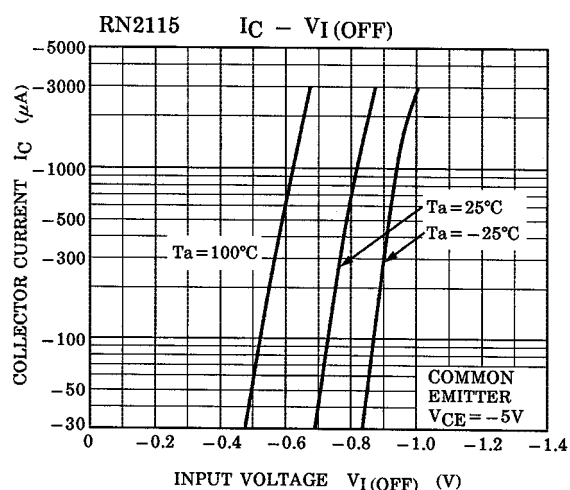
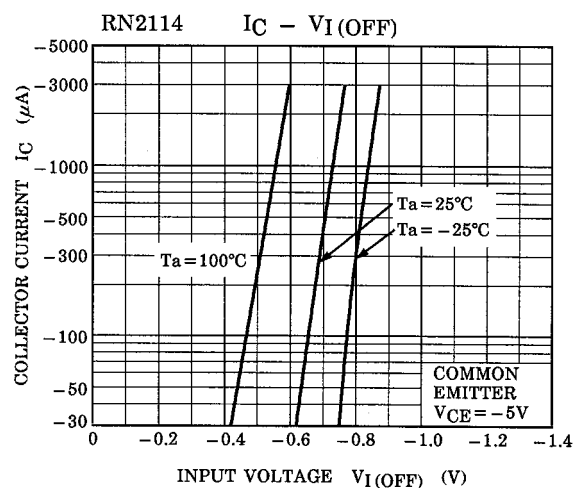
### Maximum Ratings (Ta = 25°C)

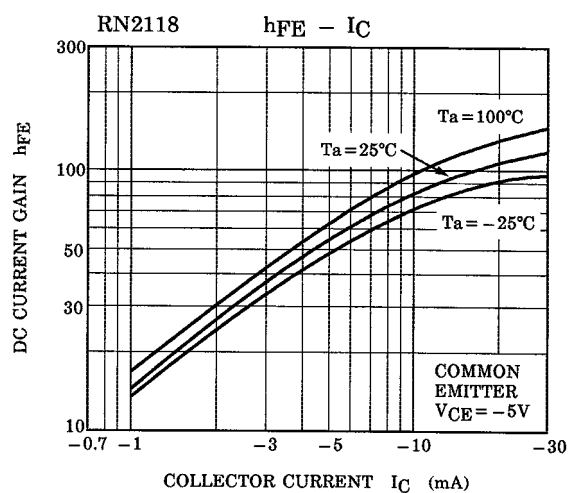
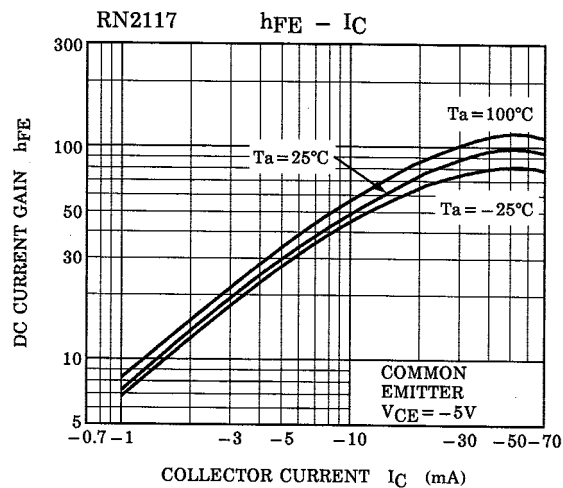
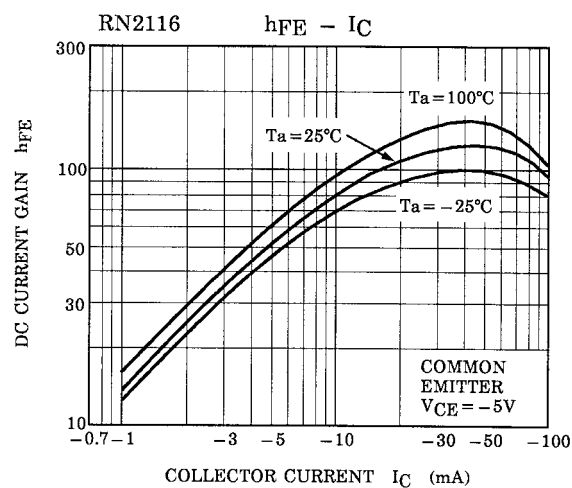
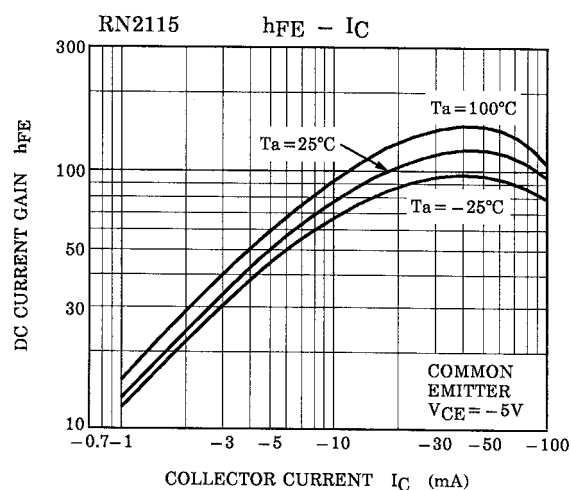
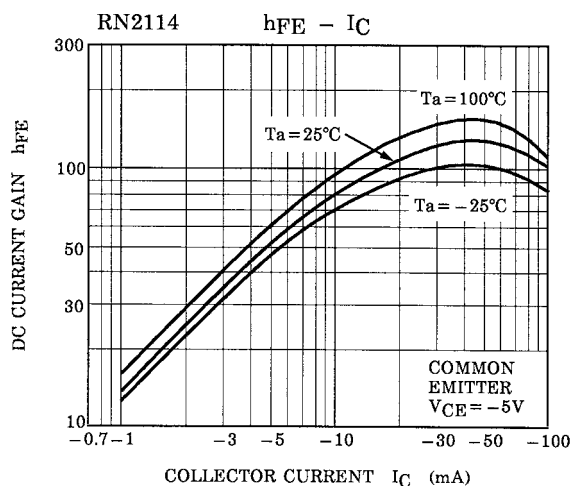
Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2114~2118	V <sub>CB0</sub>	−50	V
Collector-emitter voltage		V <sub>CEO</sub>	−50	V
Emitter-base voltage	RN2114	V <sub>EBO</sub>	−5	V
	RN2115		−6	
	RN2116		−7	
	RN2117		−15	
	RN2118		−25	
Collector current	RN2114~2118	I <sub>C</sub>	−100	mA
Collector power dissipation		P <sub>C</sub>	100	mW
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature range		T <sub>stg</sub>	−55~150	°C

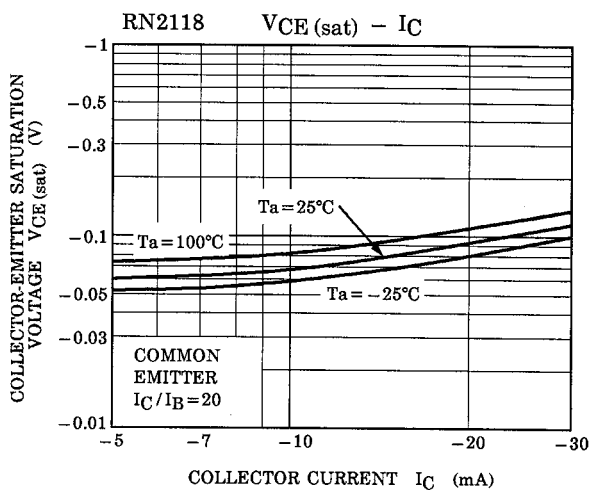
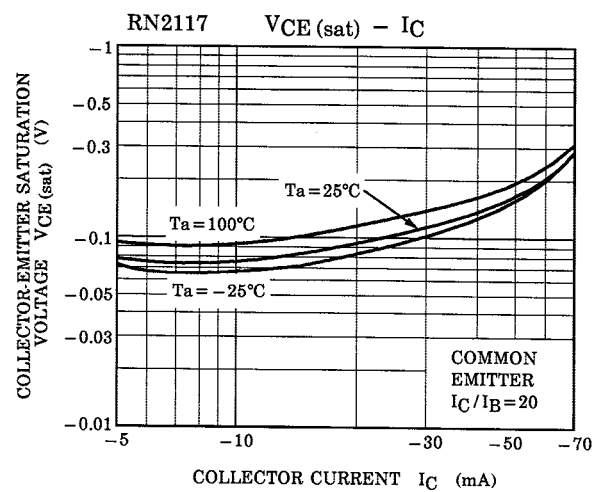
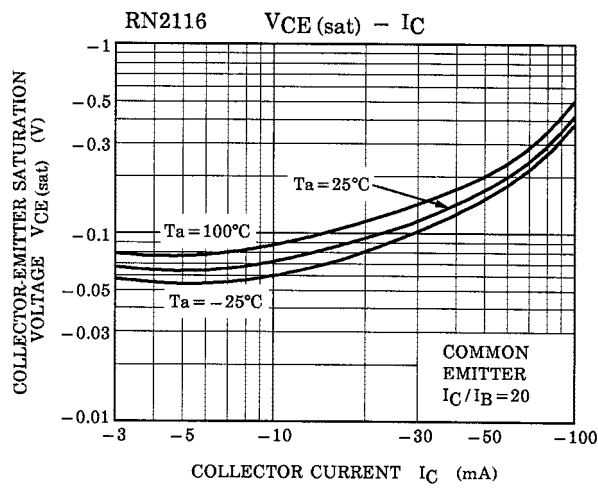
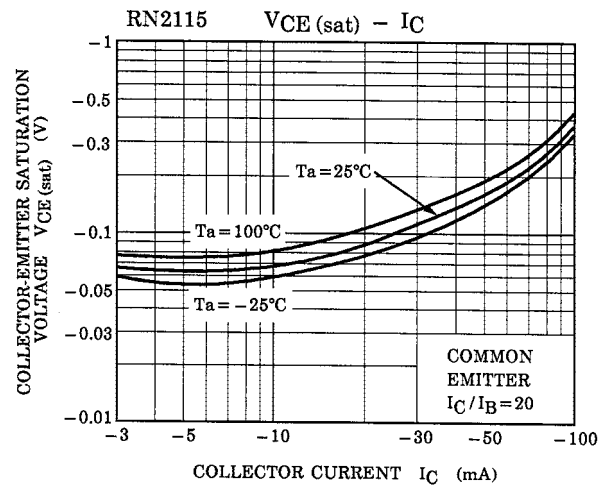
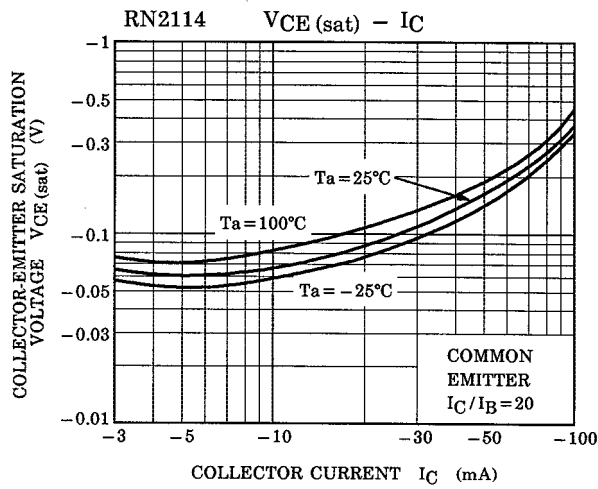
## Electrical Characteristics (Ta = 25°C)

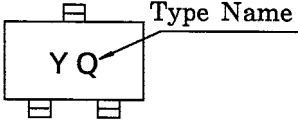
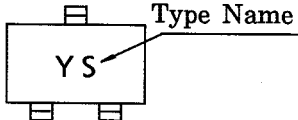
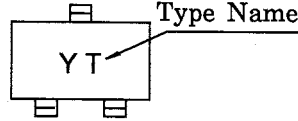
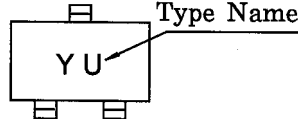
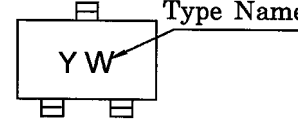
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2114~2118	$I_{CBO}$	—	$V_{CB} = -50V, I_E = 0$	—	—	-100	nA
	RN2114~2118	$I_{CEO}$		$V_{CE} = -50V, I_B = 0$	—	—	-500	nA
Emitter cut-off current	RN2114	$I_{EBO}$	—	$V_{EB} = -5V, I_C = 0$	-0.35	—	-0.65	mA
	RN2115			$V_{EB} = -6V, I_C = 0$	-0.37	—	-0.71	
	RN2116			$V_{EB} = -7V, I_C = 0$	-0.36	—	-0.68	
	RN2117			$V_{EB} = -15V, I_C = 0$	-0.78	—	-1.46	
	RN2118			$V_{EB} = -25V, I_C = 0$	-0.33	—	-0.63	
DC current gain	RN2114~16 18	$h_{FE}$	—	$V_{CE} = -5V,$ $I_C = -10mA$	50	—	—	—
	RN2117				30	—	—	
Collector-emitter saturation voltage	RN2114~2118	$V_{CE(sat)}$	—	$I_C = -5mA, I_B = -0.25mA$	—	-0.1	-0.3	V
Input voltage (ON)	RN2114	$V_{I(ON)}$	—	$V_{CE} = -0.2V, I_C = -5mA$	-0.5	—	-2.0	V
	RN2115				-0.6	—	-2.5	
	RN2116				-0.7	—	-2.5	
	RN2117				-1.5	—	-3.5	
	RN2118				-2.5	—	-10.0	
Input voltage (OFF)	RN2114	$V_{I(OFF)}$	—	$V_{CE} = -5V, I_C = -0.1mA$	-0.3	—	-0.9	V
	RN2115				-0.3	—	-1.0	
	RN2116				-0.3	—	-1.1	
	RN2117				-0.3	—	-3.0	
	RN2118				-0.5	—	-5.7	
Transition frequency	RN2114~2118	$f_T$	—	$V_{CE} = -10V, I_C = -5mA$	—	200	—	MHz
Collector Output capacitance	RN2114~2118	$C_{ob}$	—	$V_{CB} = -10V, I_E = 0,$ $f = 1MHz$	—	3.0	6.0	pF
Input resistor	RN2114	R1	—	—	0.7	1.0	1.3	kΩ
	RN2115				1.54	2.2	2.86	
	RN2116				3.29	4.7	6.11	
	RN2117				7.0	10.0	13.0	
	RN2118				32.9	47.0	61.1	
Resistor ratio	RN2114	R1/R2	—	—	—	0.1	—	—
	RN2115				—	0.22	—	
	RN2116				—	0.47	—	
	RN2117				—	2.13	—	
	RN2118				—	4.7	—	









Type Name	Marking
RN2114	
RN2115	
RN2116	
RN2117	
RN2118	

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000707EAA

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