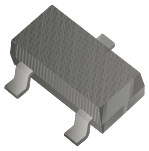
LMBTRC101SS THRU LMBTRC106SS

NPN Digital Transistor

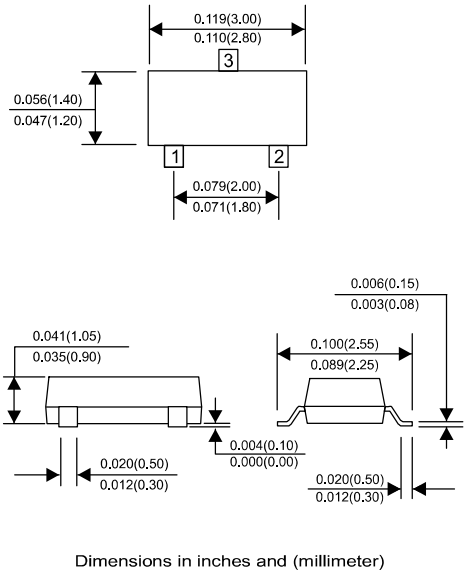
RoHS Device
Halogen Free



Features

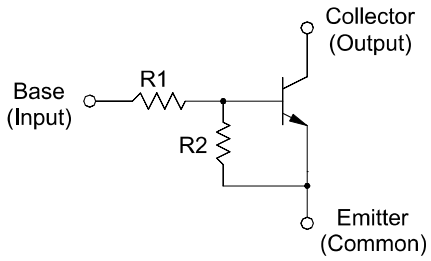
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

SOT-23



Dimensions in inches and (millimeter)

Circuit Diagram



Resistor Values

Part Number	R1 (KΩ)	R2 (KΩ)
LMBTRC101SS	4.7	4.7
LMBTRC102SS	10	10
LMBTRC103SS	22	22
LMBTRC104SS	47	47
LMBTRC105SS	2.2	47
LMBTRC106SS	4.7	47

Maximum Ratings (at Ta=25°C unless otherwise noted)

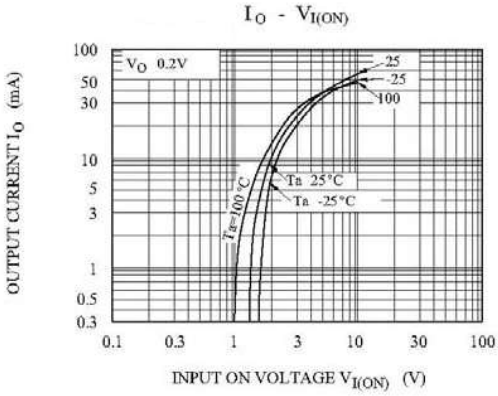
Parameter		Symbol	Value	Unit
Output Voltage		V_O	50	V
Input Voltage	LMBTRC101SS	V_I	20, -10	V
	LMBTRC102SS		30, -10	
	LMBTRC103SS		40, -10	
	LMBTRC104SS		40, -10	
	LMBTRC105SS		12, -5	
	LMBTRC106SS		20, -5	
Output Current		I_O	100	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

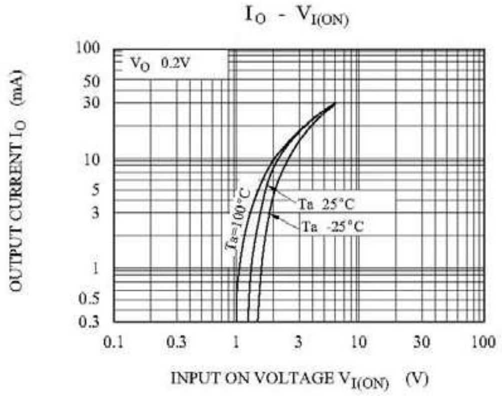
Electrical Characteristics (at Ta=25°C unless otherwise noted)

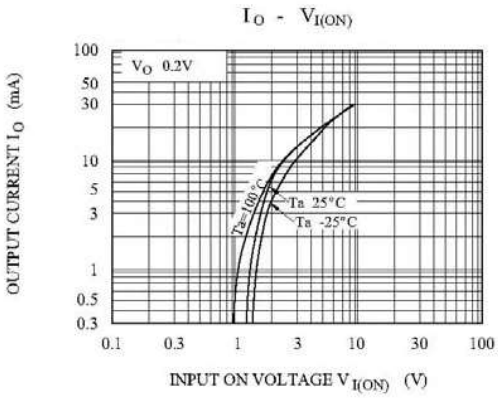
Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_O = 5 V, I_O = 10 mA	LMBTRC101SS	G_I	30	-	-	-
	LMBTRC102SS		50	-	-	-
	LMBTRC103SS		70	-	-	-
	LMBTRC104SS		80	-	-	-
	LMBTRC105SS		80	-	-	-
	LMBTRC106SS		80	-	-	-
Output Cutoff Current at V_O = 50 V		$I_{O(OFF)}$	-	-	500	nA
Input Current at V_I = 5 V	LMBTRC101SS	I_I	-	-	1.8	mA
	LMBTRC102SS		-	-	0.88	
	LMBTRC103SS		-	-	0.36	
	LMBTRC104SS		-	-	0.18	
	LMBTRC105SS		-	-	3.6	
	LMBTRC106SS		-	-	1.8	
Output Voltage at I_O = 10 mA, I_I = 0.5 mA		$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at V_O = 0.2 V, I_O = 5 mA	LMBTRC101SS	$V_{I(ON)}$	-	-	2	V
	LMBTRC102SS		-	-	2.4	
	LMBTRC103SS		-	-	3	
	LMBTRC104SS		-	-	5	
	LMBTRC105SS		-	-	1.1	
	LMBTRC106SS		-	-	1.3	
Input Voltage (OFF) at V_O = 5 V, I_O = 0.1 mA	LMBTRC101SS~104SS	$V_{I(OFF)}$	1	-	-	V
	LMBTRC105SS~106SS		0.5	-	-	
Transition Frequency at V_O = 10 V, I_O = 5 mA		f_T [1)]	-	200	-	MHz

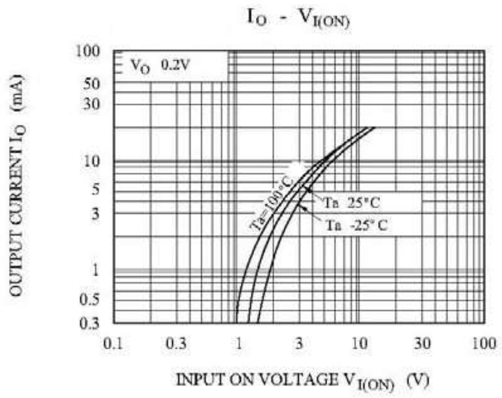
[1)] Characteristic of transistor only.

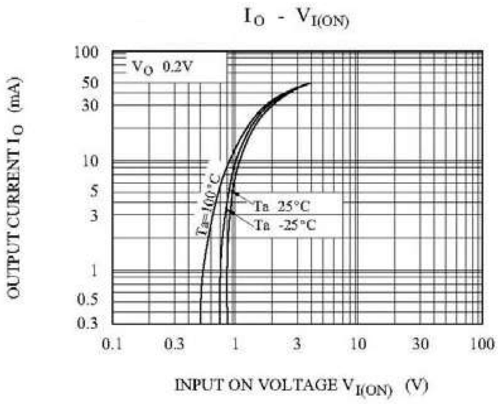
Rating and Characteristic Curves

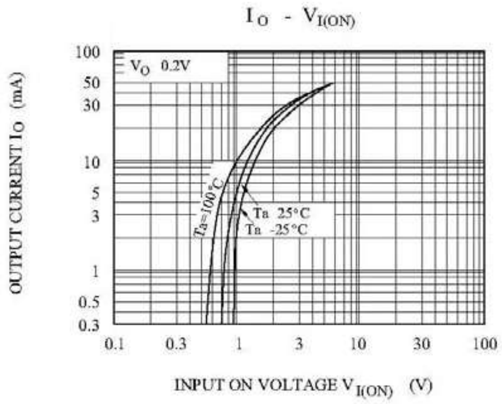












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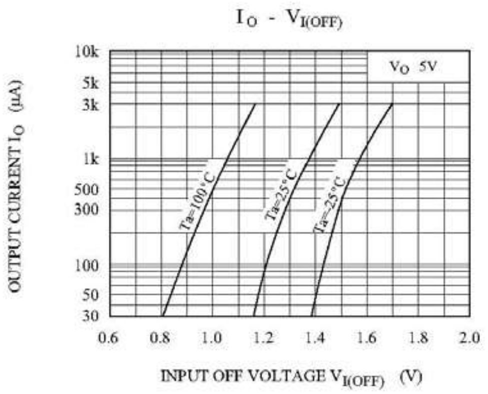
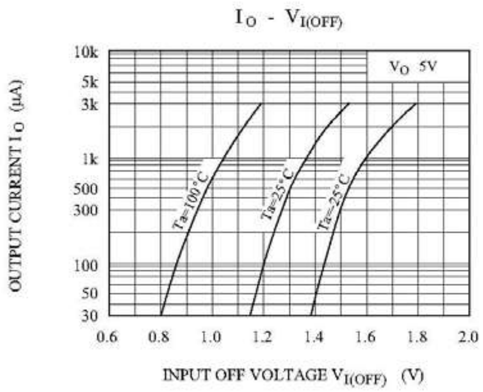
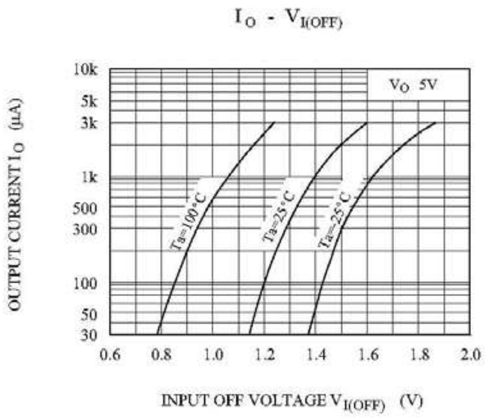
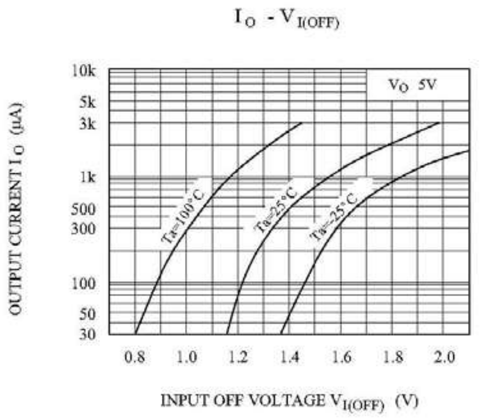
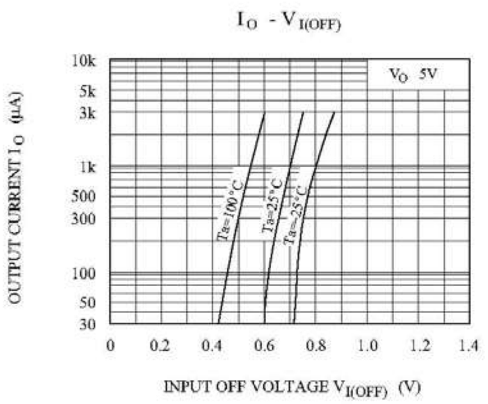
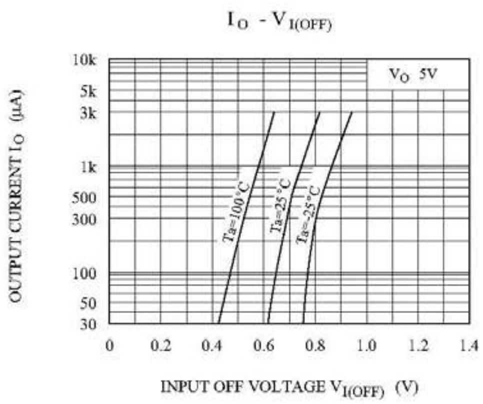






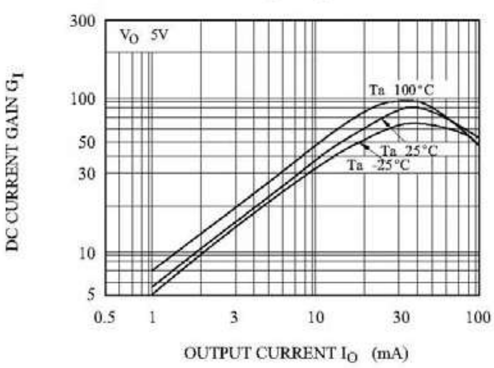




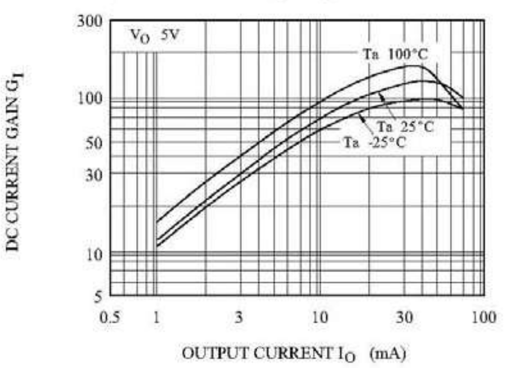


Rating and Characteristic Curves

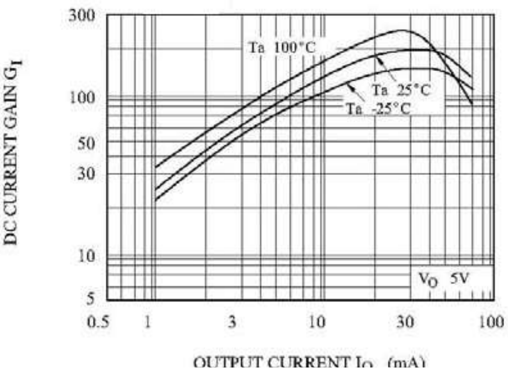
G_I - I_O



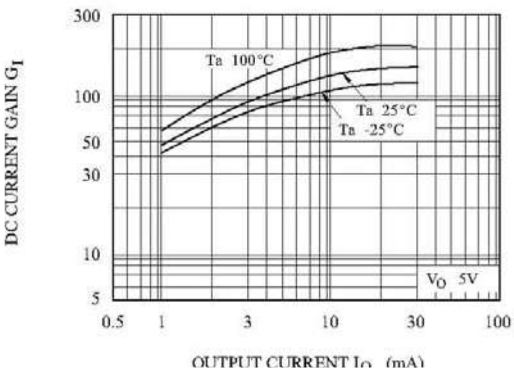
G_I - I_O



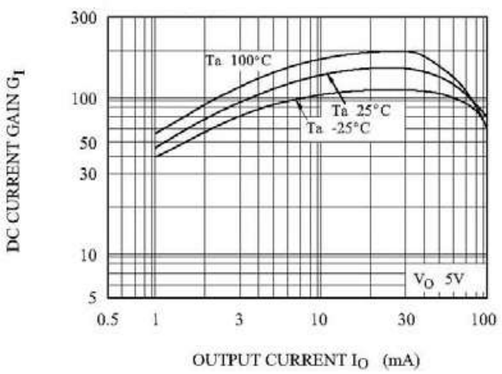
G_I - I_O



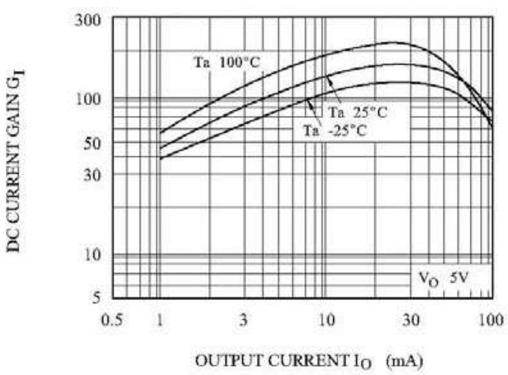
G_I - I_O



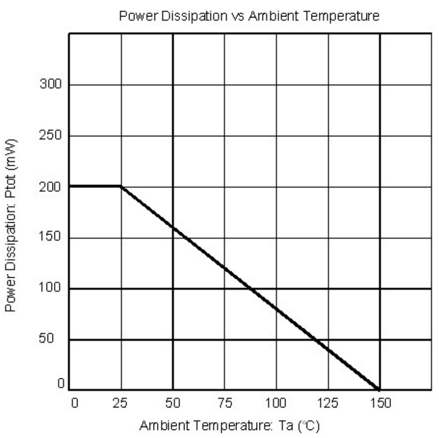
G_I - I_O



G_I - I_O

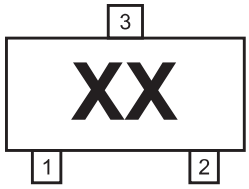


Pc-Ta



Marking Code

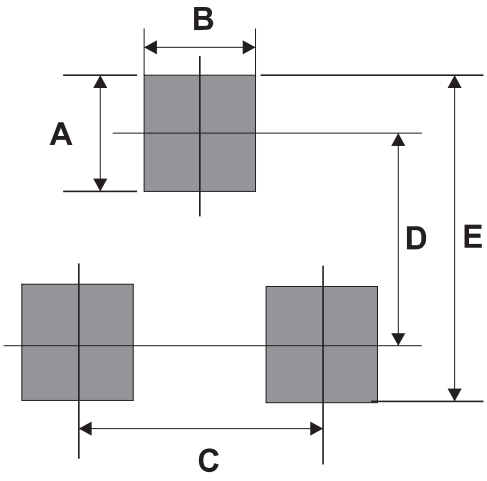
Part Number	Marking Code
LMBTRC101SS	HP
LMBTRC102SS	HN
LMBTRC103SS	HR
LMBTRC104SS	HX
LMBTRC105SS	HY
LMBTRC106SS	HZ



xx = Product type marking code

Suggested P.C.B. PAD Layout

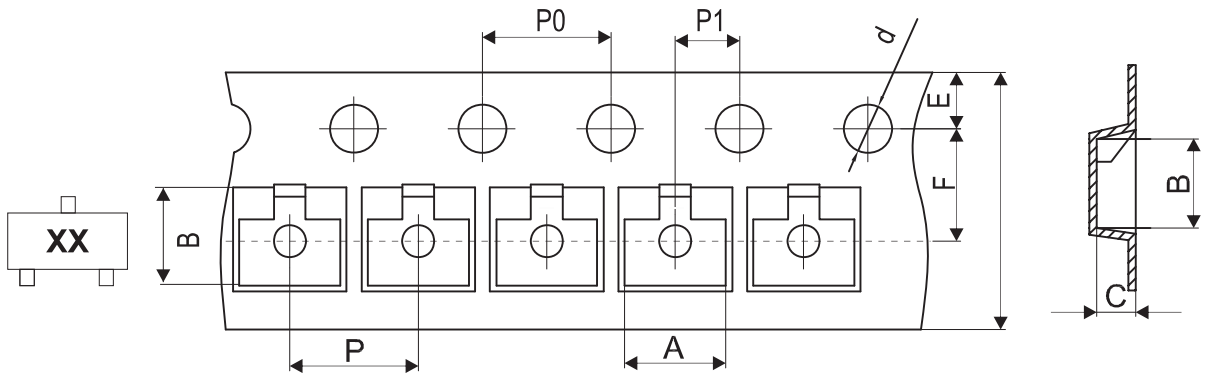
SIZE	SOT-23	
	(mm)	(inch)
A	0.80	0.031
B	0.60	0.024
C	1.90	0.075
D	2.02	0.080
E	2.82	0.111

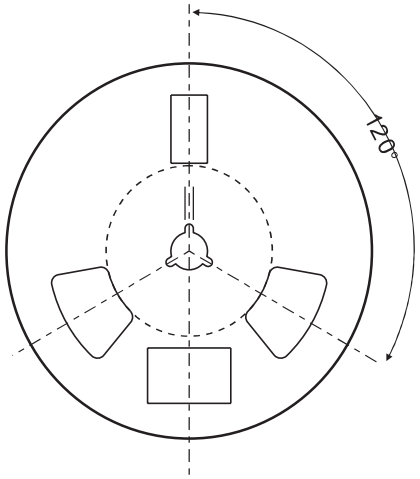


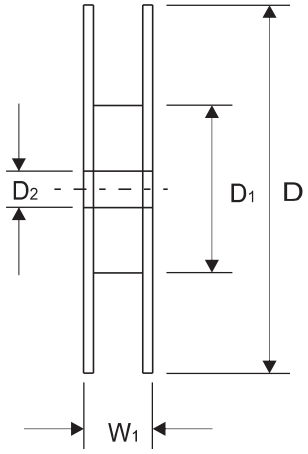
Standard Packaging

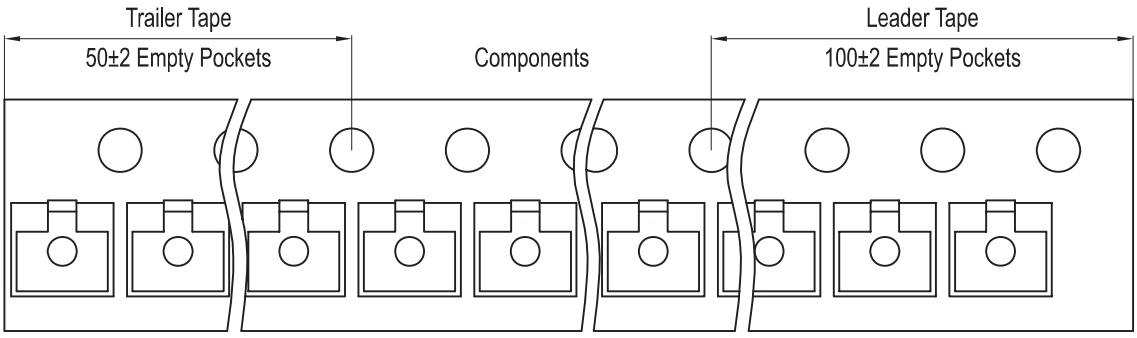
Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7

Reel Taping Specification









	SYMBOL	A	B	C	d	D	D1	D2
SOT-23	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P0	P1	W	W1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 / - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 / - 0.004	0.484 ± 0.039