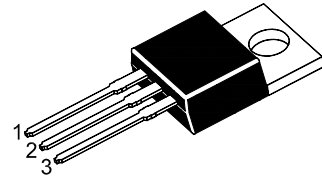


# 13005

## NPN Silicon Power Transistors

for high-voltage, high-speed power switching applications.



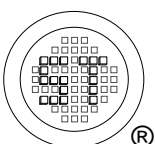
1.Base 2.Collector 3.Emitter  
TO-220 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	700	V
Collector Emitter Voltage	$V_{CEO}$	400	V
Emitter Base Voltage	$V_{EBO}$	9	V
Collector Current	$I_C$	4	A
Power Dissipation ( $T_a = 25\text{ }^\circ\text{C}$ )	$P_{tot}$	2	W
Power Dissipation ( $T_c = 25\text{ }^\circ\text{C}$ )	$P_{tot}$	75	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

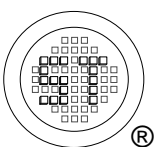
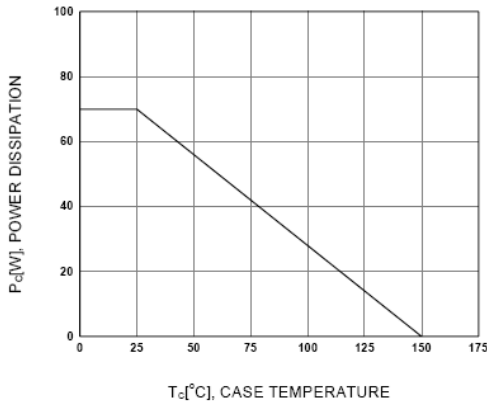
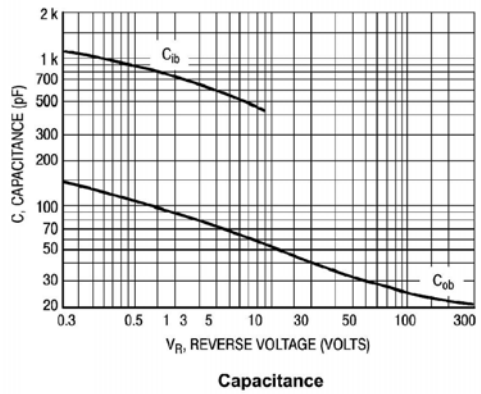
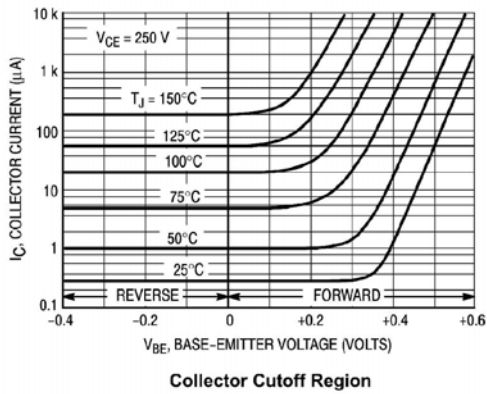
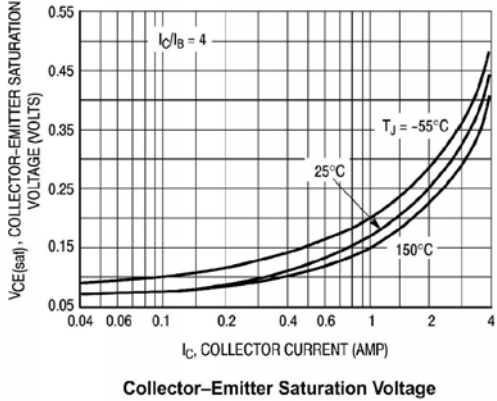
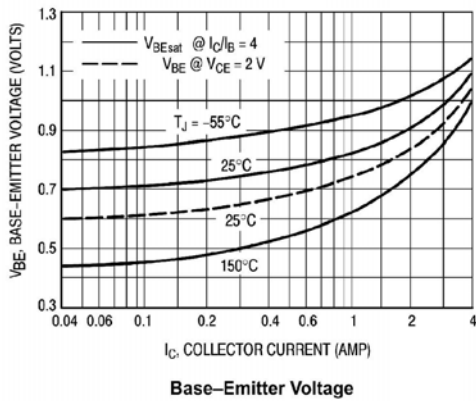
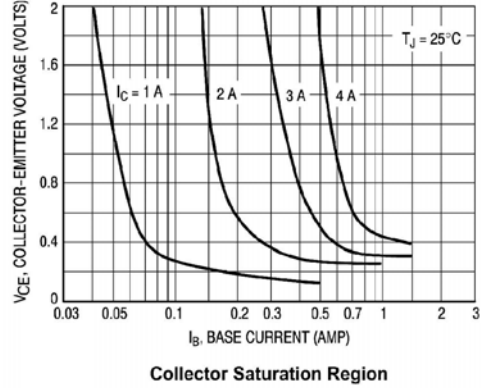
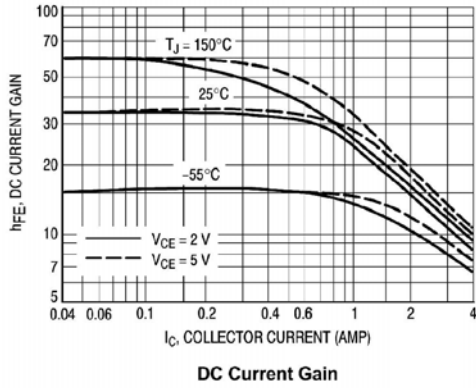
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ A}$ at $V_{CE} = 5\text{ V}$ , $I_C = 2\text{ A}$	$h_{FE}$	10	-	60	-
	$h_{FE}$	8	-	40	-
Collector Base Cutoff Current at $V_{CB} = 700\text{ V}$	$I_{CBO}$	-	-	1	mA
Emitter Base Cutoff Current at $V_{EB} = 9\text{ V}$	$I_{EBO}$	-	-	1	mA
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	400	-	-	V
Collector Emitter Saturation Voltage at $I_C = 1\text{ A}$ , $I_B = 0.2\text{ A}$ at $I_C = 2\text{ A}$ , $I_B = 0.5\text{ A}$ at $I_C = 4\text{ A}$ , $I_B = 1\text{ A}$	$V_{CE(sat)}$	-	-	0.5	V
	$V_{CE(sat)}$	-	-	0.6	V
	$V_{CE(sat)}$	-	-	1	V
Base Emitter Saturation Voltage at $I_C = 1\text{ A}$ , $I_B = 0.2\text{ A}$ at $I_C = 2\text{ A}$ , $I_B = 0.5\text{ A}$	$V_{BE(sat)}$	-	-	1.2	V
	$V_{BE(sat)}$	-	-	1.6	V
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$ , $I_C = 500\text{ mA}$ , $f = 1\text{ MHz}$	$f_T$	4	-	-	MHz
Collector Base Capacitance at $V_{CB} = 10\text{ V}$ , $f = 0.1\text{ MHz}$	$C_{ob}$	-	65	-	pF



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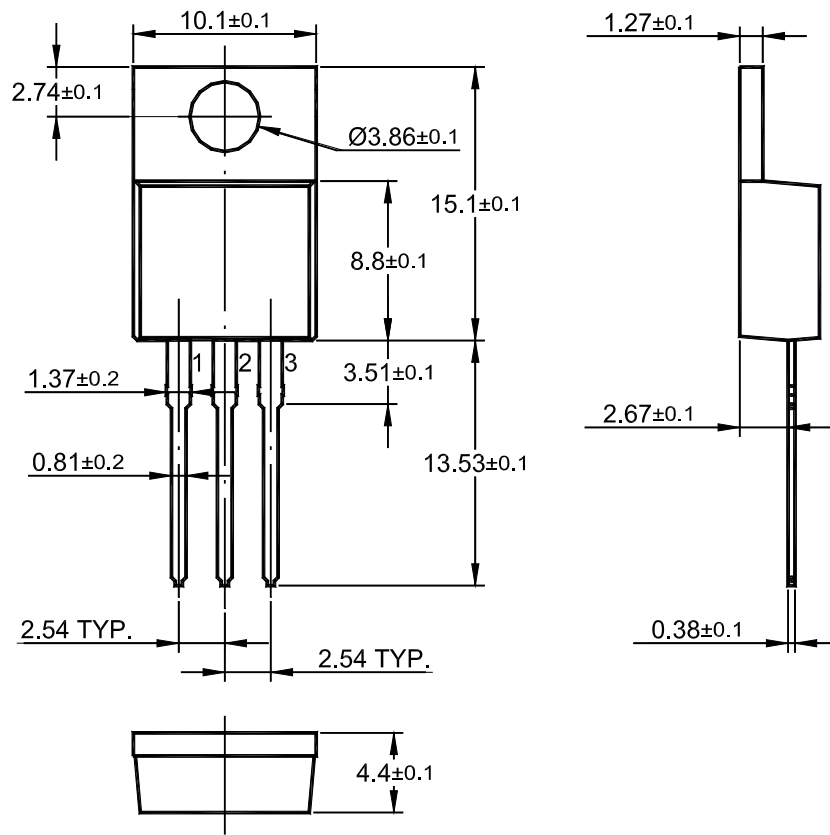
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ISO14001 : 2004 Certificate No. 7116  
ISO 9001 : 2008 Certificate No. 5071910  
BS-OHSAS 18001 : 2007 Certificate No. 7116  
IECQ QC 080000 Certificate No. PSC-HSPM-148-1



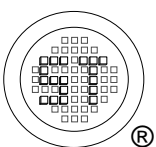
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TO-220 PACKAGE OUTLINE



Dimensions in mm



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