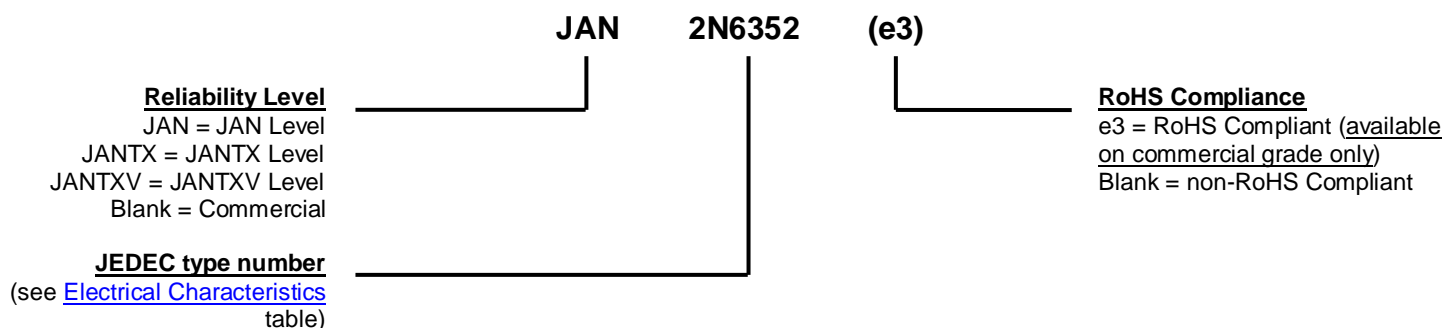


### MECHANICAL and PACKAGING

- CASE: Industry standard TO-213AA (3-pin TO-66), hermetically sealed
- FINISH: Solder dipped tin-lead over nickel plated alloy 52 or RoHS compliant matte-tin plating (on commercial grade only). Solderable per MIL-STD-750 method 2026.
- POLARITY: NPN (see [schematic](#))
- MOUNTING HARDWARE: Consult factory for optional insulator and sheet metal screws
- WEIGHT: Approximately 6 grams
- See [package dimensions](#) on last page.

### PART NOMENCLATURE



### SYMBOLS & DEFINITIONS

Symbol	Definition
$I_B$	Base current: The value of the dc current into the base terminal.
$I_C$	Collector current: The value of the dc current into the collector terminal.
$I_E$	Emitter current: The value of the dc current into the emitter terminal.
$T_C$	Case temperature: The temperature measured at a specified location on the case of a device.
$V_{CB}$	Collector-base voltage: The dc voltage between the collector and the base.
$V_{CBO}$	Collector-base voltage, base open: The voltage between the collector and base terminals when the emitter terminal is open-circuited.
$V_{CC}$	Collector-supply voltage: The supply voltage applied to a circuit connected to the collector.
$V_{CE}$	Collector-emitter voltage: The dc voltage between the collector and the emitter.
$V_{CEO}$	Collector-emitter voltage, base open: The voltage between the collector and the emitter terminals when the base terminal is open-circuited.
$V_{EB}$	Emitter-base voltage: The dc voltage between the emitter and the base
$V_{EBO}$	Emitter-base voltage, collector open: The voltage between the emitter and base terminals with the collector terminal open-circuited.

**ELECTRICAL CHARACTERISTICS @  $T_A = +25^\circ\text{C}$  unless otherwise noted**

Characteristics	Symbol	Min.	Max.	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage $I_C = 25\text{ mA}$ , $R_{B1E} = 2.2\text{ k}\Omega$ , $R_{B2E} = 100\text{ }\Omega$	2N6352 2N6353	$V_{(BR)CEO}$	80 150	V
Collector-Emitter Breakdown Voltage $I_E = 12\text{ mA}$ , base 1 open $I_E = 12\text{ mA}$ , base 2 open		$V_{(BR)EBO}$	6.0 12	V
Collector-Emitter Cutoff Current $V_{CE} = 80\text{ V}$ , $V_{EB1} = 2\text{ V}$ , $R_{B2E} = 100\text{ }\Omega$ $V_{CE} = 150\text{ V}$ , $V_{EB1} = 2\text{ V}$ , $R_{B2E} = 100\text{ }\Omega$	2N6352 2N6353	$I_{CEX}$	1.0	$\mu\text{A}$

**ON CHARACTERISTICS**

Forward-Current Transfer Ratio $I_C = 1.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ , $R_{B2E} = 1\text{ k}\Omega$	2N6352 2N6353	$h_{FE}$	2,000 1,000	
$I_C = 5.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ , $R_{B2E} = 100\text{ }\Omega$	2N6352 2N6353		2,000 1,000	10,000 10,000
$I_C = 10.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ , $R_{B2E} = 100\text{ }\Omega$	2N6352 2N6353		400 200	
Collector-Emitter Saturation Voltage $I_C = 5.0\text{ A}$ , $I_B = 5\text{ mA}$ , $R_{B2E} = 100\text{ }\Omega$ $I_C = 5.0\text{ A}$ , $I_B = 10\text{ mA}$ , $R_{B2E} = 100\text{ }\Omega$		$V_{CE(sat)}$		1.5 2.5 V
Base-Emitter Voltage Non-saturated $V_{CE} = 5.0\text{ V}$ , $I_C = 5.0\text{ A}$ , $R_{B2E} = 100\text{ }\Omega$		$V_{BE}$		2.5 V

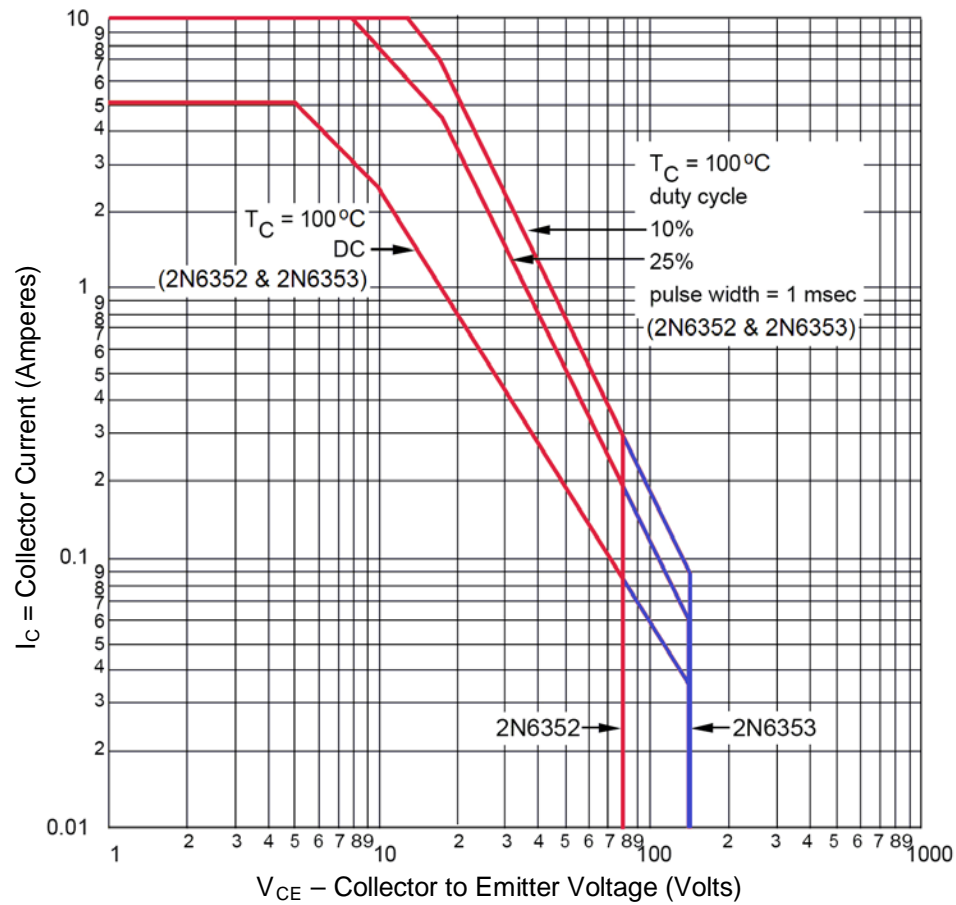
**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.0\text{ A}$ , $V_{CE} = 10.0\text{ V}$ , $f = 10\text{ MHz}$ , $R_{B2E} = 100\text{ }\Omega$	$ h_{fe} $	5	25	
Output Capacitance $V_{CB} = 10\text{ V}$ , $100\text{ kHz} \leq f \leq 1\text{ MHz}$ , base 2 open	Cobo		120	pF

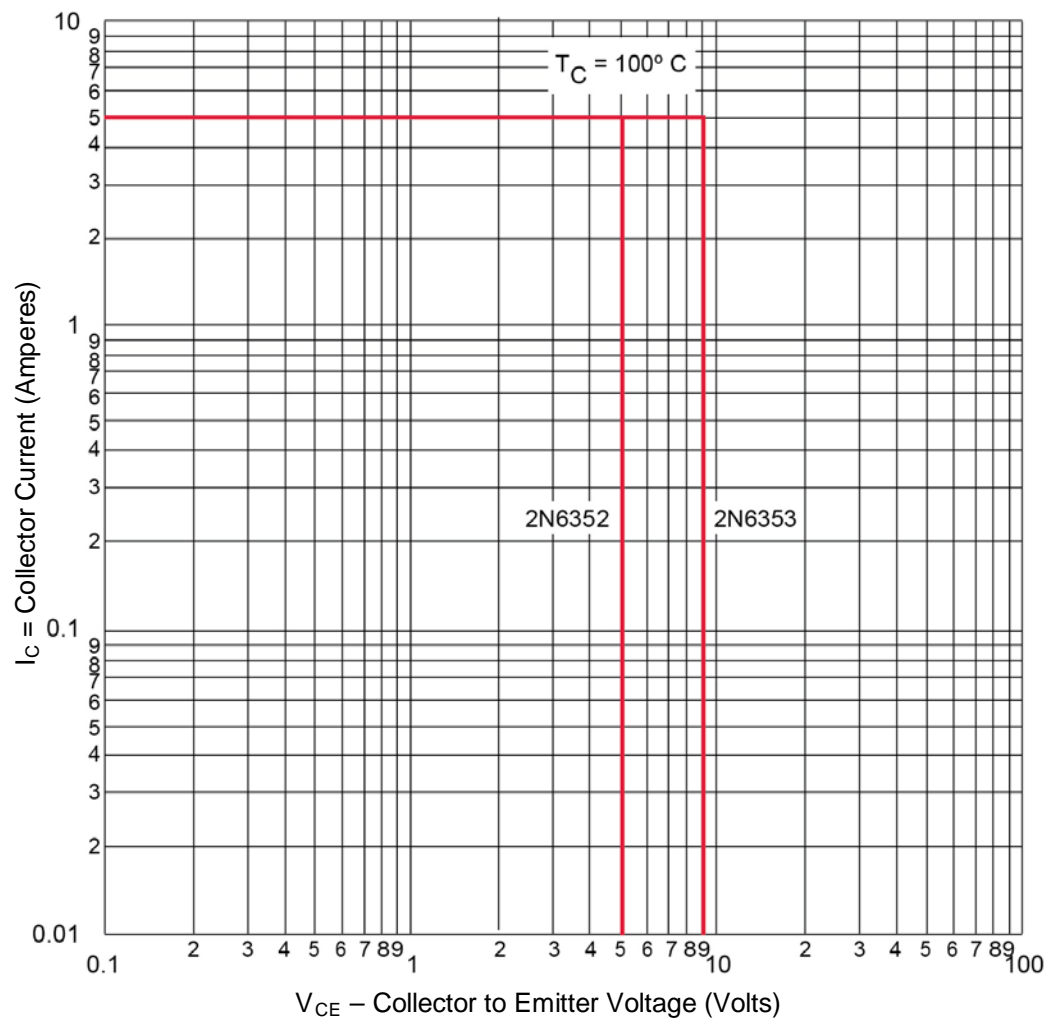
**ELECTRICAL CHARACTERISTICS @  $T_C = 25^\circ\text{C}$  unless otherwise noted. (continued)****SWITCHING CHARACTERISTICS**

Turn-On Time $V_{CC} = 30\text{ V}, I_C = 5.0\text{ A}$	$t_{on}$		0.5	$\mu\text{s}$
Turn-Off Time $V_{CC} = 30\text{ V}, I_C = 5.0\text{ A}$	$t_{off}$		1.2	$\mu\text{s}$

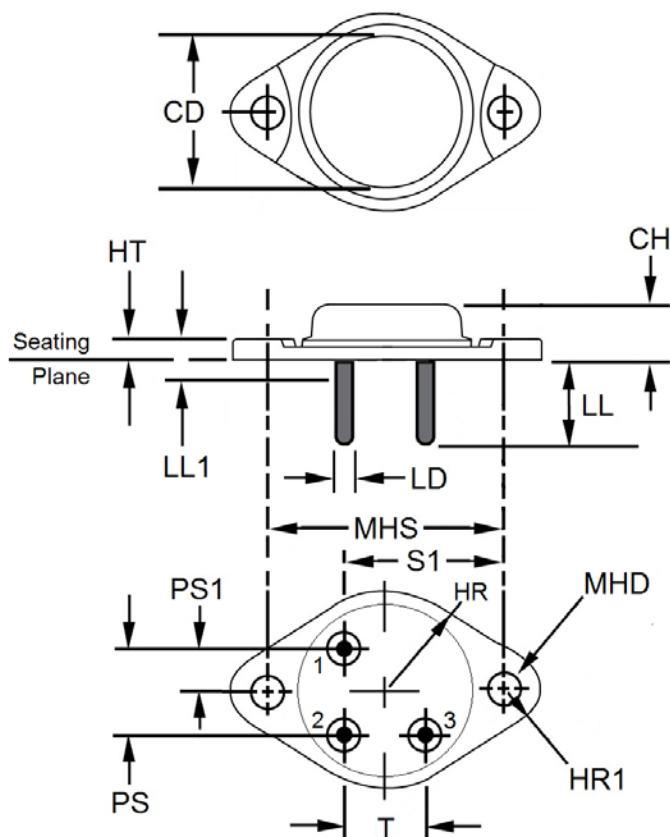
**SAFE OPERATING AREA (See [Figures 1 and 2](#) and [MIL-STD-750, Test Method 3053](#))****DC Tests** $T_C = +100^\circ\text{C}, t \geq 1\text{ second}, 1\text{ Cycle}; t_r + t_f = 10\text{ }\mu\text{s}, R_{B2E} = 100\text{ }\Omega$ **Test 1** $V_{CE} = 5.0\text{ V}, I_C = 5.0\text{ A}$ **Test 2** $V_{CE} = 10\text{ V}, I_C = 2.5\text{ A}$ **Test 3** $V_{CE} = 80\text{ V}, I_C = 95\text{ mA (2N6352)}$ **Test 4** $V_{CE} = 150\text{ V}, I_C = 35\text{ mA (2N6353)}$

**SAFE OPERATING AREA**


**FIGURE 1**  
Maximum Safe Operating Area

**SAFE OPERATING AREA (continued)**


**FIGURE 2**  
Safe Operating Area For Switching Between Saturation And Cutoff  
(unclamped inductive load)

**PACKAGE DIMENSIONS**


Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	-	0.620	-	15.75	
CH	0.250	0.340	6.35	8.64	
HR	-	0.350	-	8.89	
HR1	0.115	0.145	2.92	3.68	
HT	0.050	0.075	1.27	1.91	3
LD	0.028	0.034	0.711	0.863	4
LL	0.360	0.500	9.14	12.70	4
LL1	-	0.050	-	1.27	4
MHD	0.142	0.152	3.61	3.86	
MHS	0.958	0.962	24.33	24.43	
PS	0.190	0.210	4.83	5.33	
PS1	0.093	0.105	2.36	2.67	
S1	0.570	0.590	14.48	14.99	
T	0.190	0.210	4.83	5.33	
T1	Emitter				
T2	Base (B <sub>1</sub> )				
T3	Base (B <sub>2</sub> )				
Case	Collector				

**NOTES:**

1. Dimensions are in inches. Millimeters are given for information only.
2. Internal resistance (typically 750 ohms). This resistor is optional.
3. The outline contour is optional.
4. Dimension does not include sealing flanges.
5. All leads.
6. Terminal designation is as follows: 1 – emitter, 2 – base (B<sub>1</sub>), 3 – base (B<sub>2</sub>). The collector shall be connected to the case.
7. Shape of capweld flange is optional and cannot extend beyond dimension HR.
8. In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.

**SCHEMATIC**
