

NPN Darlington Transistor

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0\text{ mA}, I_B = 0$	100		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}, I_E = 0$	100		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1.0\text{ mA}, I_C = 0$	12		V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 80\text{ V}, I_E = 0$		0.1	μA
I_{CES}	Collector-Cutoff Current	$V_{CE} = 80\text{ V}, I_E = 0$		0.2	μA
I_{EBO}	Emitter-Cutoff Current	$V_{EB} = 7.0\text{ V}, I_C = 0$		0.1	μA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$I_C = 100\text{ mA}, V_{CE} = 5.0\text{ V}$ $I_C = 1.0\text{ A}, V_{CE} = 5.0\text{ V}$	10,000 1,000	20,000	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{ mA}, I_B = 0.1\text{ mA}$		1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100\text{ mA}, V_{BE} = 5.0\text{ V}$		2.0	V

SMALL SIGNAL CHARACTERISTICS

F_T	Transition Frequency	$I_C = 100\text{ mA}, V_{CE} = 5.0\text{ V},$	200		MHz
C_{cb}	Collector-Base Capacitance	$V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$ 2N7052 2N7053		10 8.0	pF

*Pulse Test: Pulse Width $\leq 300\text{ ms}$, Duty Cycle $\leq 1.0\%$

Typical Characteristics

