DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N3766-2N3767

NPN POWER SILICON TRANSISTORS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Ratings	Symbol	2N3766	2N3767	Units
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Base Current	I_B	2.0		Adc
Collector Current	I_C	4.0		Adc
Total Power Dissipation @ T_C = +25°C	P_T	25		W
Operating and Storage Temperature Range	T_{op}, T_{stg}	-65 to +200		°C
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	7.0		°C/W

(1) Derate linearly 143 mW/°C between T_C = 25°C and T_C = 200°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Characteristics		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage					
I_C = 100 mAdc	2N3766	$V_{(BR)CEO}$	60		Vdc
	2N3767		80		
Collector-Emitter Cutoff Current					
V_{CE} = 60 Vdc	2N3766	I_{CEO}		500	µAdc
V_{CE} = 80 Vdc	2N3767			500	
Collector-Emitter Cutoff Current					
V_{CE} = 80 Vdc, V_{BE} = 1.5 Vdc	2N3766	I_{CEX}		10	µAdc
V_{CE} = 100 Vdc, I_B = 1.5 Vdc	2N3767			10	
Collector-Base Cutoff Current					
V_{CB} = 80 Vdc	2N3766	I_{CBO}		10	µAdc
V_{CB} = 100 Vdc	2N3767			10	
Emitter-Base Cutoff Current		I_{EBO}			µAdc
V_{EB} = 6.0 Vdc				500	
ON CHARACTERISTICS[2]					
Forward-Current Transfer Ratio				160	
I_C = 50 mAdc, V_{CE} = 5.0 Vdc		h_{FE}	30		
I_C = 500 mAdc, V_{CE} = 5.0 Vdc			40		
I_C = 1.0 Adc, V_{CE} = 10 Vdc			20		
Collector-Emitter Saturation Voltage					
I_C = 1.0 Adc, I_B = 0.1 Adc		$V_{CE(sat)}$		2.5	Vdc
I_C = 0.5 Adc, I_B = 0.05 Adc				1.0	
Base-Emitter Voltage		$V_{BE(on)}$		1.5	Vdc
I_C = 1.0 Adc, V_{CE} = 10 Vdc					
DYNAMIC CHARACTERISTICS					
Magnitude of Common Emitter Small Signal Short Circuit Forward Current Transfer Ratio		$\lvert h_{fe} \rvert$	1.0	8.0	
I_C = 500 mAdc, V_{CE} = 10 Vdc, f = 10 MHz					

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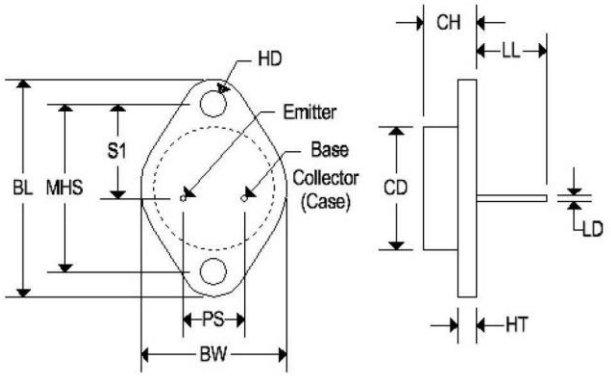
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Output Capacitance **V_{CB} = 10 Vdc, I_E = 0, 0.1 MHz ≤ f ≤ 1.0 MHz**	C_{obo}		50	pF
SWITCHING CHARACTERISTICS				
Turn-On Time **V_{CC} = 30 Vdc, I_C = 0.5 Adc, I_B = 0.05 Adc**	t_{on}		0.25	µs
Turn-Off Time **V_{CC} = 30 Vdc, I_C = 0.5 Adc, I_B = I_B = 0.05 Adc**	t_{off}		2.5	µs
SAFE OPERATING AREA **DC Tests** **T_C = +25°C, 1 Cycle, t = 1.0 s**				
Test 1 **V_{CE} = 6.25 Vdc, I_C = 4.0 Adc** **Test 2** **V_{CE} = 20 Vdc, I_C = 1.25 Adc.** **Test 3** **V_{CE} = 50 Vdc, I_C = 150 mAdc** 2N3766 **V_{CE} = 65 Vdc, I_C = 150 mAdc** 2N3767				

(2) Pulse Test: Pulse Width = 300 µs, Duty Cycle ≤ 2.0%

MECHANICAL CHARACTERISTICS

Case:	TO-66
Marking:	Alpha-Numeric
Polarity:	See Below



Dim	TO-66			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	1.205	1.280	30.60	32.50
CD	0.445	0.557	11.303	14.148
CH	0.257	0.284	6.540	7.220
LL	0.374	0.413	9.500	10.50
BW	0.680	0.727	17.26	18.46
LD	0.030	0.036	0.760	0.920
HT	0.054	0.065	1.380	1.650
MHS	0.951	0.976	24.16	24.78
S1	0.545	0.614	13.84	15.60
HD	0.131	0.154	3.320	3.920
PS	0.191	0.210	4.860	5.340