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NTE ELECTRONICS, INC.
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NTE2311
Silicon NPN Transistor
High Voltage, High Speed Switch

Description:
The NTE2311 is a silicon NPN transistor in a TO218 type case designed for use in high voltage, high speed switching applications.

Features:
- High Blocking Capability: V_{CEX} = 1000V
- Wide Surge Area: I_{CSM} = 55A @ 350V

Applications:
- Switchmode Power Supply
- DC/DC and DC/AC Converters
- Motor Control

Absolute Maximum Ratings: (T_C = +25°C unless otherwise specified)

Collector–Emitter Voltage, V_{CEO} 450V
Collector–Emitter Voltage (V_{BE} = –2.5V), V_{CEX} 1000V
Emitter–Base Voltage, V_{EBO} 7V
Collector Current ($t_p \le 5$ms), I_C
  Continuous 15A
  Peak 30A
Base Current ($t_p \le 5$ms), I_B
  Continuous 4A
  Peak 20A
Power Dissipation, P_{tot}
  T_C = +25°C 150W
  T_C = +60°C 115W
Operating Junction Temperature Range, T_J . . . . . –65° to +175°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1°C/W

Electrical Characteristics: (T_J = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
OFF Characteristics							
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_B = 0, I_C = 200mA, L = 25mH		450	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_C = 0, I_E = 50mA		7	–	30	V
Collector Cutoff Current	I_{CEX}	T_J = +25°C	V_{CE} = V_{CEX}, V_{BE} = –2.5V	–	–	0.2	mA
		T_J = +125°C		–	–	2.0	mA
	I_{CER}	T_J = +25°C	V_{CE} = V_{CEX}, R_{BE} = 10Ω	–	–	0.5	mA
		T_J = +125°C		–	–	4.0	mA

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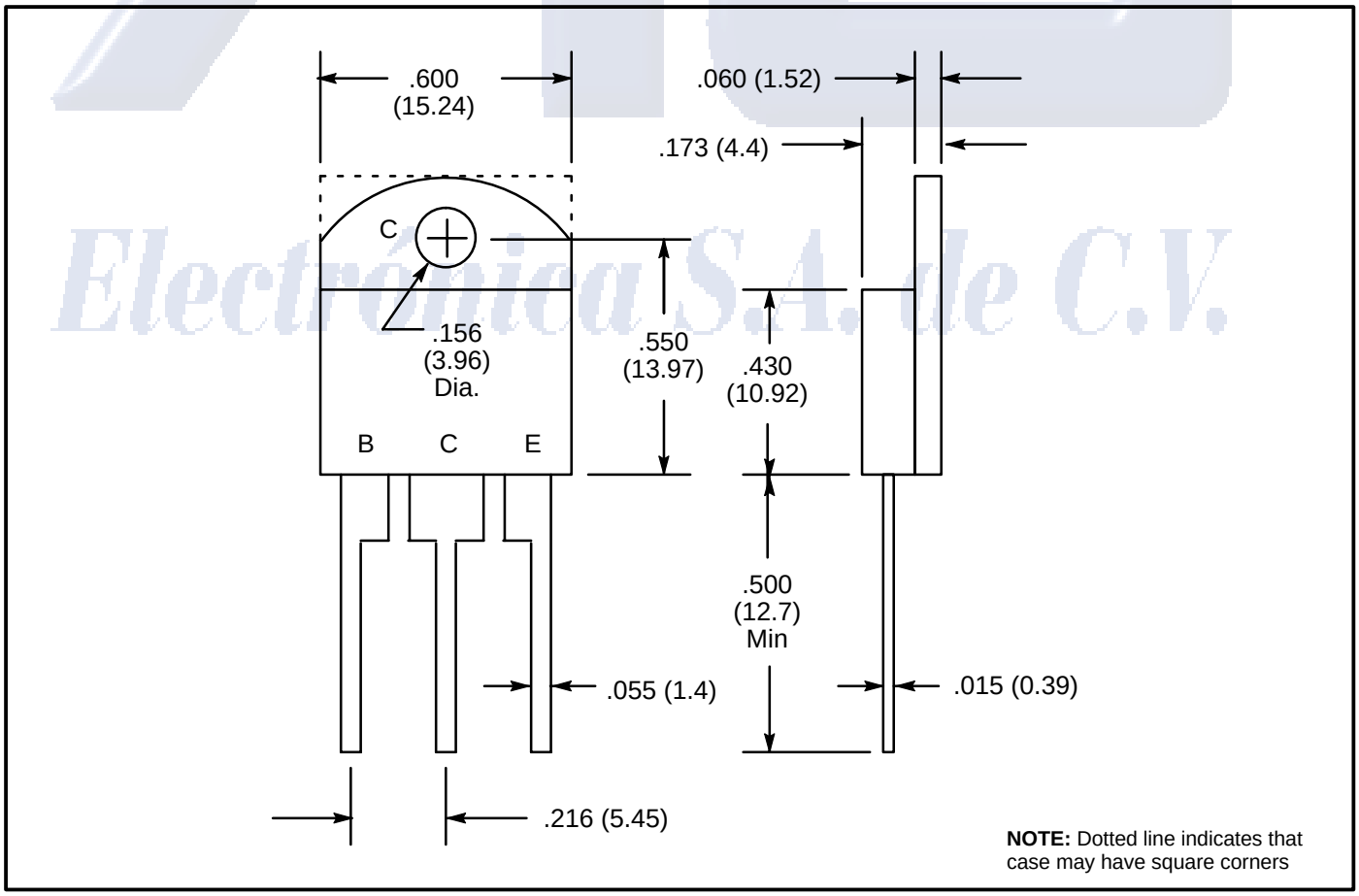
Electrical Characteristics (Cont'd): (T_J = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
OFF Characteristics (Cont,d)							
Emitter Cutoff Current	I_{EBO}	I_C = 0, V_{BE} = –5V		–	–	1	mA
ON Characteristics (Note 1)							
DC Current Gain	h_{FE}	I_C = 8Adc, V_{CE} = 5Vdc)		10	–	–	–
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 8A, I_B = 1.6A		–	–	1.5	V
		I_C = 12A, I_B = 2.4A		–	–	5.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 8A, I_B = 1.6A		–	–	1.6	V
Switching Characteristics (Switching Times on Resistive Load)							
Turn–On Time	t_{on}	V_{CC} = 150V, I_C = 8A, I_{B1} = $-I_{B2}$ = 1.6A		–	0.55	1.0	µs
Storage Time	t_s			–	1.5	3.0	µs
Fall Time	t_f			–	0.3	0.8	µs
Switching Characteristics (Switching Times on Inductive Load)							
Storage Time	t_s	T_J = +25°C	V_{CC} = 300V, V_{BB} = –5V, L_B = 3µH, I_C = 8A, I_{Bend} = 1.6A	–	3.5	–	µs
		T_J = +125°C		–	–	5.0	µs
Fall Time	t_f	T_J = +25°C		–	0.08	–	µs
		T_J = +125°C		–	–	0.4	µs

Note 1. Pulse Test: Pulse Width < 300µs, Duty Cycle < 2%



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