



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## NTE3320 Insulated Gate Bipolar Transistor N-Channel Enhancement Mode, High Speed Switch TO3P Type Package

**Features:**

- Fourth Generation IGBT
- Enhancement Mode Type
- High Speed
- Low Switching Loss
- Low Saturation Voltage

**Applications:**

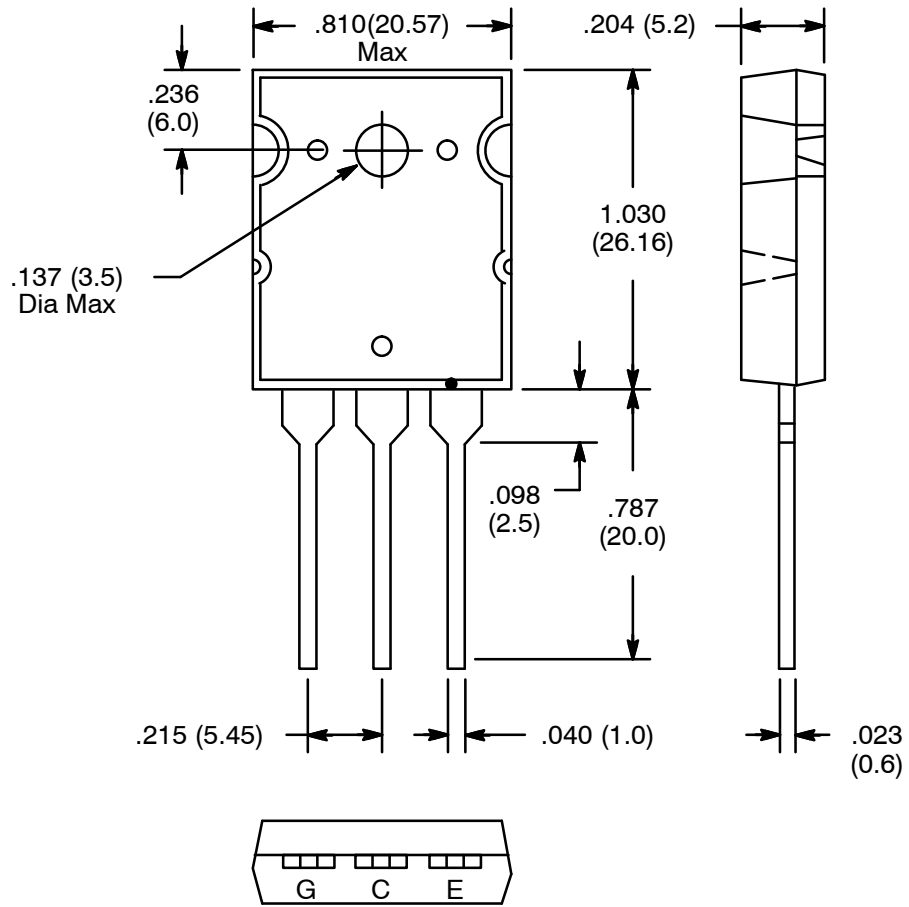
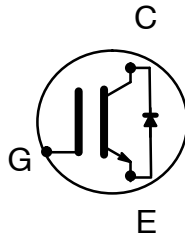
- High Power Switching

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Collector-Emitter Voltage, $V_{CES}$ .....	600V
Gate-Emitter Voltage, $V_{GES}$ .....	$\pm 20\text{V}$
Collector Current, $I_C$	
DC .....	50A
Pulse (1ms) .....	100A
Collector Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_C$ .....	240W
Operating Junction Temperature, $T_J$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{th(j-c)}$ .....	$0.521^\circ\text{C/W}$
Screw Torque .....	$0.8\text{N}\cdot\text{m}$

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Leakage Current	$I_{GES}$	$V_{GE} = \pm 20\text{V}, V_{CE} = 0$	-	-	$\pm 500$	nA
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 600\text{V}, V_{GE} = 0$	-	-	1.0	mA
Gate-Emitter Cutoff Voltage	$V_{GE(off)}$	$I_C = 5\text{ mA}, V_{CE} = 5\text{V}$	3.5	-	6.5	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{A}, V_{GE} = 15\text{V}$	-	2.0	2.45	V
Input Capacitance	$C_{ies}$	$V_{CE} = 10\text{V}, V_{GE} = 0, f = 1\text{MHz}$	-	7900	-	pF
Turn-On Delay Time	$t_{d(on)}$	Inductive Load  $V_{CC} = 300\text{V}, I_C = 50\text{ A},$ $V_{GG} = 15\text{V}, R_G = 13\ \Omega$	-	0.09	-	$\mu\text{s}$
Rise Time	$t_r$		-	0.07	-	$\mu\text{s}$
Turn-On Time	$t_{on}$		-	0.24	-	$\mu\text{s}$
Turn-Off Delay Time	$t_{d(off)}$		-	0.30	-	$\mu\text{s}$
Fall Time	$t_f$		-	0.05	-	$\mu\text{s}$
Turn-Off Time	$t_{off}$		-	0.43	-	$\mu\text{s}$
Turn-On Switching Loss	$E_{on}$		-	1.30	-	mJ
Turn-Off Switching Loss	$E_{off}$		-	1.34	-	mJ



**Note:** Collector connected to heat sink.