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## NTE3322

### Insulated Gate Bipolar Transistor N-Channel Enhancement Mode, High Speed Switch TO3PBL

**Features:**

- Enhancement Mode Type
- FRD Included Between Emitter and Collector
- High Speed
- Low Saturation Voltage

**Applications:**

- High Power Switching

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

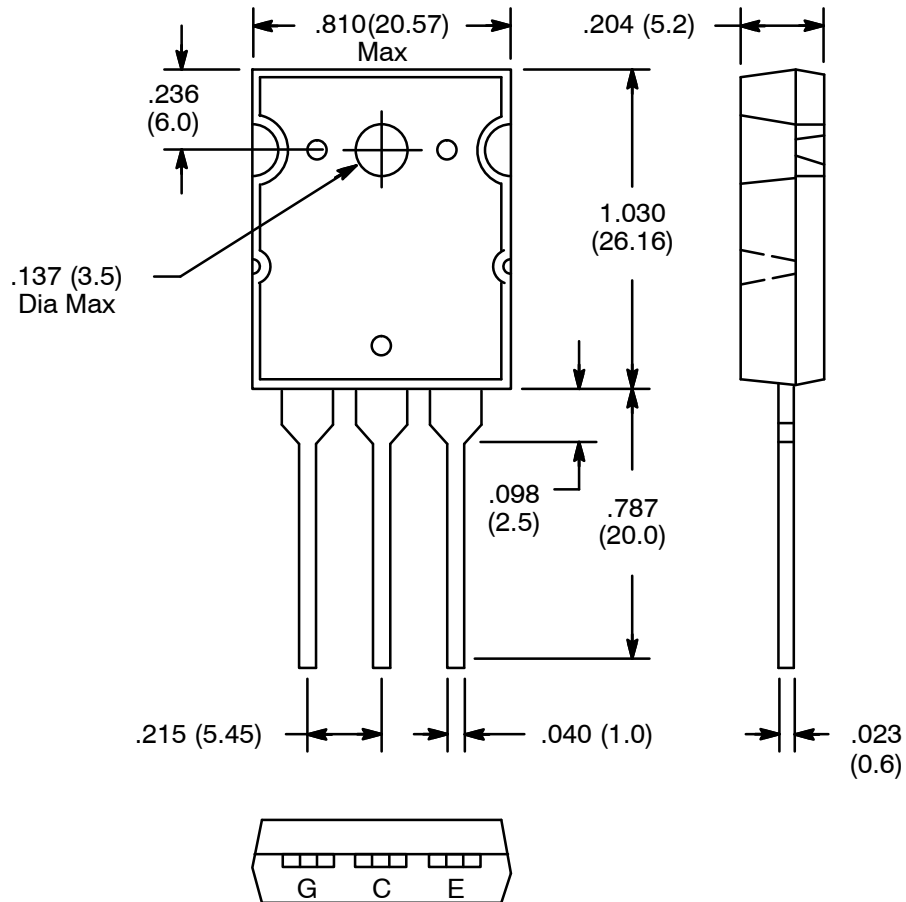
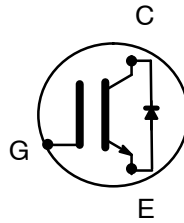
Collector-Emitter Voltage, $V_{CES}$ .....	900V
Gate-Emitter Voltage, $V_{GES}$ .....	$\pm 25\text{V}$
Collector Current, $I_C$	
DC .....	60A
Pulse (1ms) .....	120A
Emitter-Collector Forward Current, $I_{EC}$	
DC .....	15A
Pulse (1ms) .....	120A
Collector Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_C$ .....	170W
Operating Junction Temperature, $T_J$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$	
IGBT .....	$0.74^\circ\text{C/W}$
Diode .....	$4.0^\circ\text{C/W}$
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	$I_{GES}$	$V_{GE} = \pm 25\text{V}, V_{CE} = 0$	-	-	$\pm 500$	nA
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 900\text{V}, V_{GE} = 0$	-	-	1.0	mA
Gate-Emitter Cutoff Voltage	$V_{GE(off)}$	$I_C = 60\text{mA}, V_{CE} = 5\text{V}$	3.0	-	6.0	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{A}, V_{GE} = 15\text{V}$	-	1.6	2.2	V
		$I_C = 60\text{A}, V_{GE} = 15\text{V}$	-	2.1	2.7	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	$C_{ies}$	$V_{CE} = 10\text{V}, V_{GE} = 0, f = 1\text{MHz}$	-	3800	-	pF
Rise Time	$t_r$	$V_{CC} = 600\text{V}$	-	0.35	0.60	$\mu\text{s}$
Turn-On Time	$t_{on}$		-	0.46	0.75	$\mu\text{s}$
Fall Time	$t_f$		-	0.25	0.40	$\mu\text{s}$
Turn-Off Time	$t_{off}$		-	0.60	0.70	$\mu\text{s}$
Emitter-Collector Forward Voltage	$V_{ECF}$	$I_{EC} = 15\text{A}, V_{GE} = 0$	-	1.5	2.0	V
Reverse Recovery Time	$t_{rr}$	$I_F = 15\text{A}, V_{GE} = 0, di/dt = -20\text{A}/\mu\text{s}$	-	0.7	2.5	$\mu\text{s}$



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