



## UG25N45

Preliminary

**NPN SILICON TRANSISTOR**

### N-CHANNEL INSULATED GATE BIPOLAR TRANSISTOR

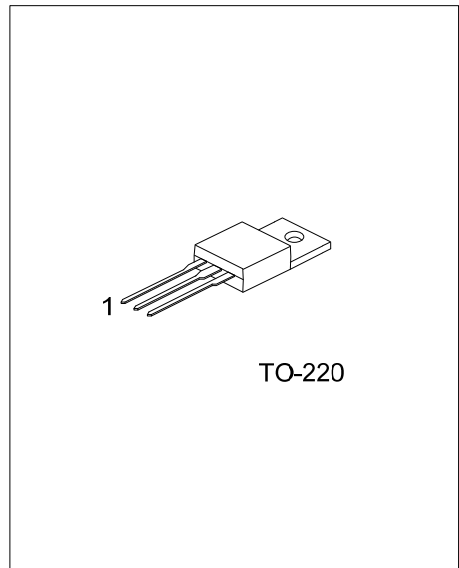
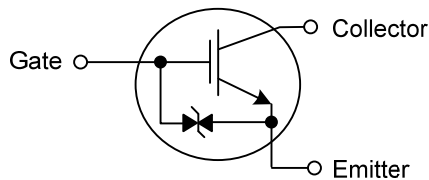
#### DESCRIPTION

UTC **UG25N45** is an N-channel NPN transistor. It can be used in strobe flash applications

#### FEATURES

- \* Very high input impedance
- \* Very high pick current capability
- \* Gate drive: 4.5V

#### SYMBOL



Lead-free: UG25N45L  
 Halogen-free: UG25N45G

#### ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
UG25N45-TA3-T	UG25N45L-TA3-T	UG25N45G-TA3-T	TO-220	G	C	E	Tube

<p>UG25N45L-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</p> <p>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
---	--

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	$V_{CEO}$	450	V
Gate-Emitter Voltage	$V_{GEO}$	$\pm 6$	V
Pulsed Gate-Emitter Current	$I_{GEP}$	$\pm 8$	A
Pulsed Collector Current	$I_{CP}$	150	A
Power Dissipation @ $T_C=25^\circ\text{C}$	$P_D$	2.5	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Operating Temperature	$T_{OPR}$	-55 ~ +150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

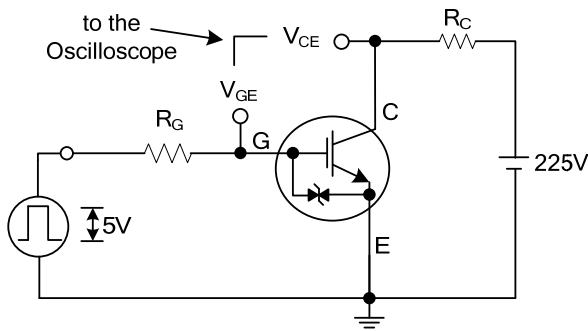
■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	$\theta_{JA}$			50	$^\circ\text{C/W}$

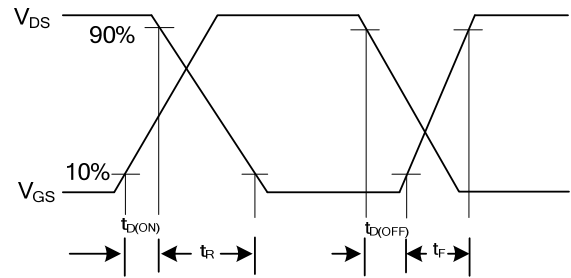
■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$V_{GE}=4.5\text{V}$ , $I_{CP}=150\text{A}$ (Pulsed)		6	8	V
Collector-Emitter Leakage Current	$I_{CES}$	$V_{CE}=450\text{V}$ , $V_{GE}=0\text{V}$			10	$\mu\text{A}$
Gate-Emitter Leakage Current	$I_{GES}$	$V_{GE}=\pm 6\text{V}$ , $V_{CE}=0\text{V}$			10	
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GE(TH)}$	$V_{CE}=V_{GE}$ , $I_C=250\mu\text{A}$	0.35		1.2	V
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{IES}$	$V_{GE}=0\text{V}$ , $V_{CE}=25\text{V}$ , $f=1.0\text{MHz}$		2227		pF
Output Capacitance	$C_{OES}$			200		pF
Reverse Transfer Capacitance	$C_{RES}$			79		pF
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$t_{D(ON)}$	$V_{CC}=225\text{V}$ , $I_C=50\text{A}$ , $R_G=25\Omega$ , $V_{GE}=10\text{V}$		11.5		ns
Turn-On Rise Time	$t_R$			24.5		ns
Turn-Off Delay Time	$t_{D(OFF)}$			150		ns
Turn-Off Fall Time	$t_F$			3.3		ns
Total Gate Charge	$Q_G$	$V_{CE}=360\text{V}$ , $V_{GE}=4.5\text{V}$ , $I_C=50\text{A}$		64.5		nC
Gate-Emitter Charge	$Q_{GE}$			7		nC
Gate-Collector Charge	$Q_{GC}$			30		nC

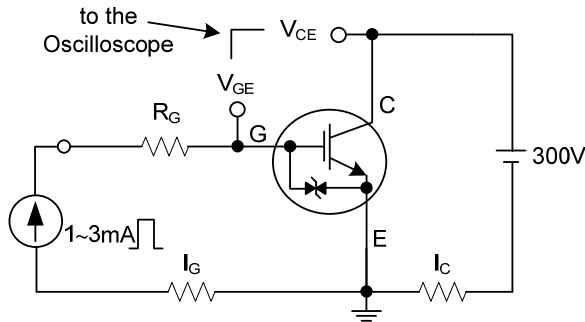
■ TYPICAL CHARACTERISTICS



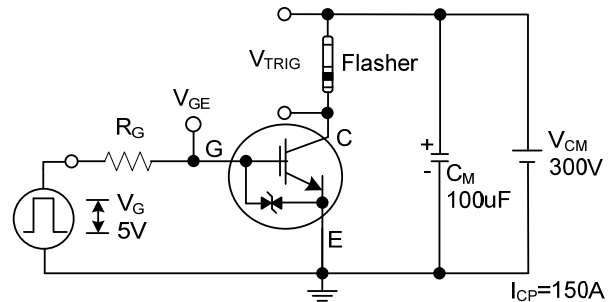
Switching Test Circuit



Switching Waveforms



Gate Charge Test Circuit



Application Test Circuit

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.