



## UG25N45

Preliminary

**NPN SILICON TRANSISTOR**

### N-CHANNEL INSULATED GATE BIPOLAR TRANSISTOR

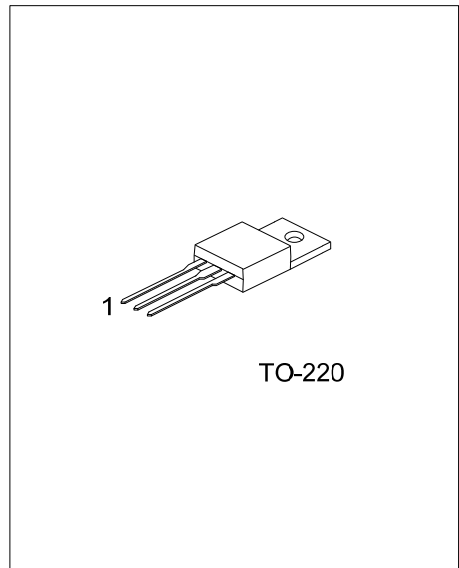
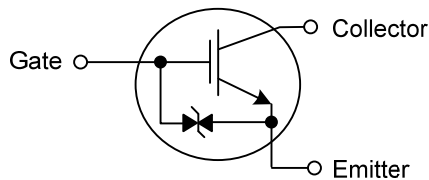
#### DESCRIPTION

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

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

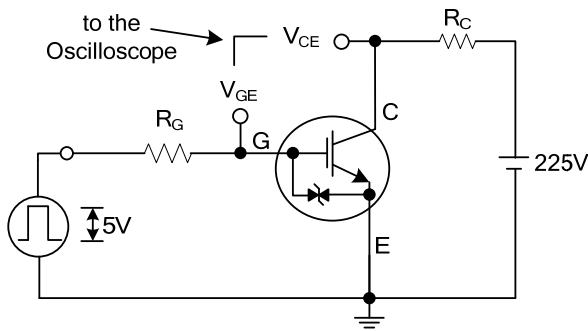
■ THERMAL DATA

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

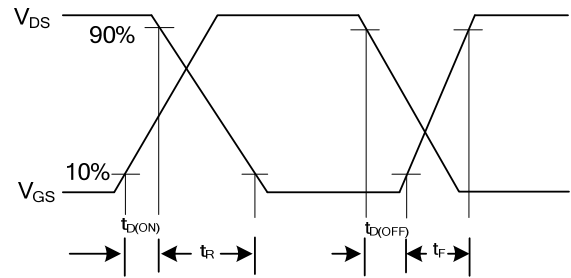
■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

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

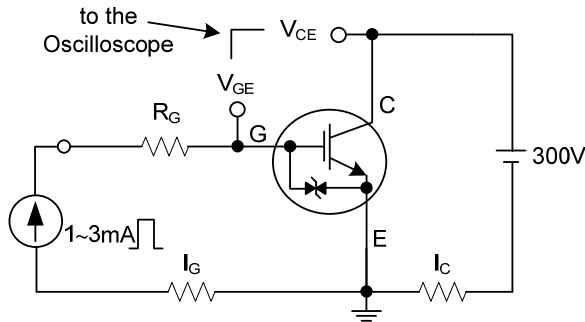
■ TYPICAL CHARACTERISTICS



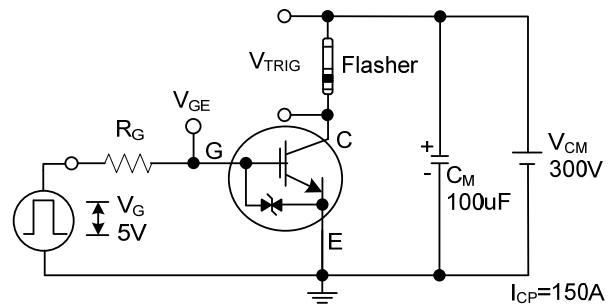
Switching Test Circuit



Switching Waveforms



Gate Charge Test Circuit



Application Test Circuit

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