

**UTG25N135LNS2**

Preliminary

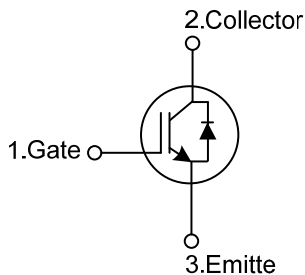
*Insulated Gate Bipolar Transistor***1200V SMPS N-CHANNEL
IGBT****■ DESCRIPTION**

The UTC **UTG25N135LNS2** is a N-channel IGBT. it uses UTC's advanced technology to provide customers with high input impedance, high switching speed and low conduction loss, etc.

The UTC **UTG25N135LNS2** is suitable for high voltage switching, high frequency switch mode power supplies.

■ FEATURES

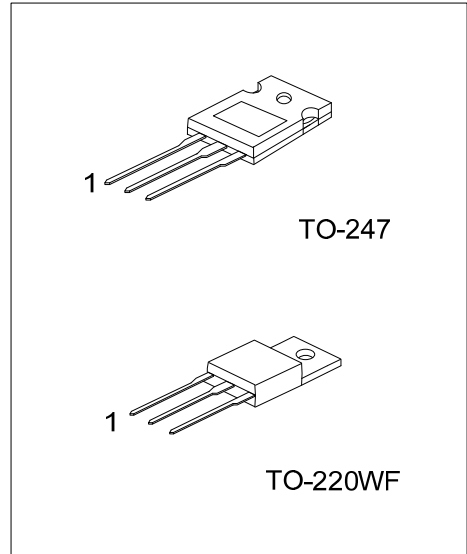
- * High switching speed
- * High avalanche ruggedness
- * Low saturation voltage: $V_{CE(SAT).Typ.} = 1.8V @ I_C=25A, V_{GE}=15V$ ($T_C = 25^{\circ}C$)

■ SYMBOL**■ ORDERING INFORMATION**

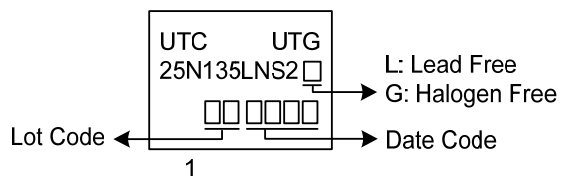
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTG25N135LNS2L-TW1-T	UTG25N135LNS2G-TW1-T	TO-220WF	G	C	E	Tube
UTG25N135LNS2L-T47-T	UTG25N135LNS2G-T47-T	TO-247	G	C	E	Tube

Note: Pin Assignment: G: Gate C: Collector E: Emitter

UTG25N135LNS2G-TW1-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TW1: TO-220WF, T47: TO-247
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free



■ MARKING



■ **ABSOLUTE MAXIMUM RATINGS** ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V_{CES}	1200	V
Gate-Emitter Voltage	V_{GES}	± 20	V
Transient Gate-emitter voltage ($t_p < 5 \text{ ms}$)		± 25	V
Continuous Collector Current	I_C	$T_C=25^{\circ}\text{C}$	A
		$T_C=100^{\circ}\text{C}$	A
Collector Current Pulsed (Note 1)	I_{CM}	100	A
Diode Forward Current	I_F	$T_C=25^{\circ}\text{C}$	A
		$T_C=100^{\circ}\text{C}$	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	TO-220WF	W
		TO-247	W
Operating Junction Temperature	T_J	$-40 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Notes: 1. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

2. Pulse width limited by maximum junction temperature.

■ **THERMAL DATA**

PARAMETER	SYMBOL	RATING	UNIT
Junction to Case	θ_{JC}	TO-220WF	$^{\circ}\text{C/W}$
		TO-247	$^{\circ}\text{C/W}$

■ **ELECTRICAL CHARACTERISTICS** ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage	BV_{CES}		1200			V
Collector Cut-Off Current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V$			5	μA
G-E Leakage Current	I_{GES}	$V_{CE}=0V, V_{GE}=\pm 20V$			± 250	nA
ON CHARACTERISTICS						
Gate to Emitter Threshold Voltage	$V_{GE(TH)}$	$I_C=250\mu A, V_{CE}=V_{GE}$	3.5		6.5	V
Collector to Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=25A, V_{GE}=15V$	$T_C=25^{\circ}C$	1.8	2.3	V
			$T_C=125^{\circ}C$	2.2		V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{IES}	$V_{CE}=25V, V_{GE}=0V, f=1MHz$		2650		pF
Output Capacitance	C_{OES}			90		pF
Reverse Transfer Capacitance	C_{RES}			45		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_G	$V_{CE}=600V, I_C=25A, V_{GE}=15V$		140		nC
Gate-Emitter Charge	Q_{GE}			30		nC
Gate-Collector Charge	Q_{GC}			71		nC
Turn-On Delay Time	t_{DON}	$V_{CC}=600V, I_C=25A, R_G=5\Omega, V_{GE}=0\sim 15V, L=500\mu H$		15		ns
Rise Time	t_R			27		ns
Turn-Off Delay Time	t_{DOFF}			99		ns
Fall Time	t_F			274		ns
Turn-On Switching Loss	E_{ON}			1.78		mJ
Turn-Off Switching Loss	E_{OFF}			1.93		mJ
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Forward Voltage Drop	V_F	$I_F=25A$			3.6	V
Reverse Recovery Time	t_{rr}	$I_F=25A, dI/dt=100A/\mu S$		49		ns
Reverse Recovery Charge	Q_{rr}			1232		nC

■ TEST CIRCUIT AND WAVEFORMS

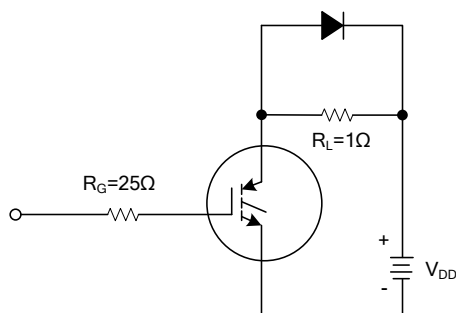


Fig 1. INDUCTIVE SWITCHING TEST CIRCUIT

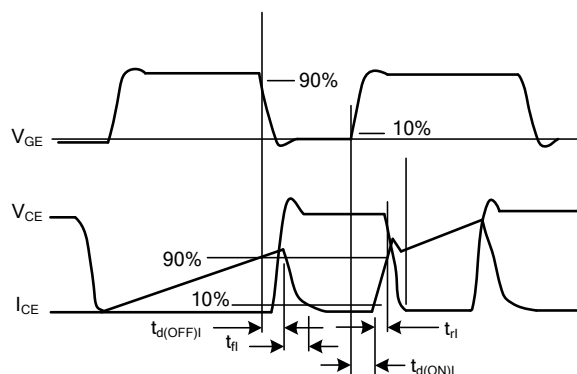


Fig 2. SWITCHING TEST WAVEFORMS

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