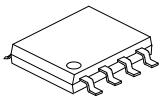
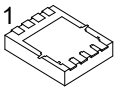
UTG4009

Insulated Gate Bipolar Transistor

400V TRENCH GATE FIELD-STOP IGBT



SOP-8



PDFN5×6

■ DESCRIPTION

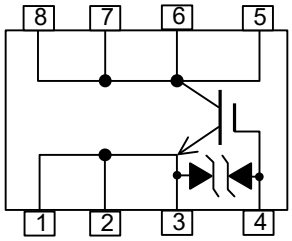
The UTC **UTG4009** is an Trench Field-Stop Insulated Gate Bipolar Transistor. it uses UTC's advanced technology to provide customers with high switching speed, low saturation voltage and low switching loss, etc.

The UTC **UTG4009** is suitable for the resonant or soft switching applications.

■ FEATURES

* High switching speed
* High avalanche ruggedness
* Low saturation voltage: $V_{CE(SAT).Typ.}$=2.5V @ I_C=150A, V_{GE}=2.5V (T_C =25°C)

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTG4009L-S08-R	UTG4009G-S08-R	SOP-8	E	E	E	G	C	C	C	C	Tape Reel
UTG4009L-P5060-R	UTG4009G-P5060-R	PDFN5×6	E	E	E	G	C	C	C	C	Tape Reel

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

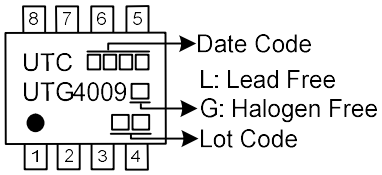
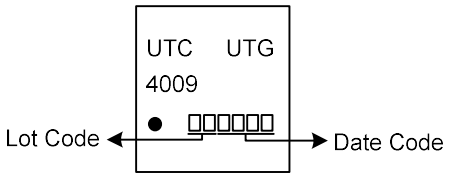
UTG4009G-S08-R

(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) S08: SOP-8, P5060: PDFN5×6
(3) G: Halogen Free and Lead Free, L: Lead Free

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■ MARKING

SOP-8	PDFN5x6
	

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		V_{CES}	400	V
Gate-Emitter Voltage		V_{GES}	±6	V
Continuous Collector Current	T_C=25°C	I_C	75	A
	T_C=100°C		40	A
Collector Current Pulsed (Note 1)		I_{CM}	150	A
Power Dissipation (T_C=25°C)	SOP-8	P_D	1.8	W
	PDFN5×6		20	W
Operating Junction Temperature		T_J	-40 ~ +150	°C
Storage Temperature Range		T_{STG}	-40 ~ +150	°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	RATINGS	UNIT
Junction to Case	SOP-8	θ_{JC}	69.4	°C/W
	PDFN5×6		6.25	°C/W

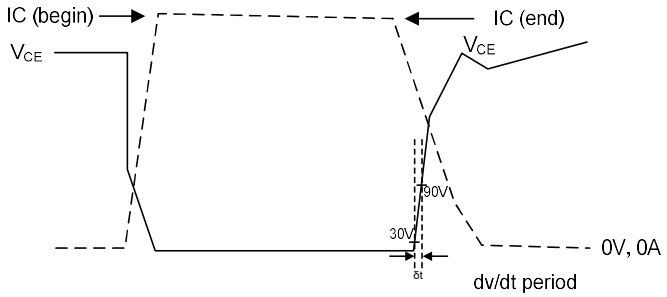
Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off Characteristics						
Collector-Emitter Breakdown Voltage	BV_{CES}		400			V
Collector Cut-Off Current	I_{CES}	V_{CE}=400V, V_{GE}=0V			1	μA
G-E Leakage Current	I_{GES}	V_{CE}=0V, V_{GE}=±6V			±10	μA
On Characteristics						
Gate to Emitter Threshold Voltage	$V_{GE(TH)}$	I_C=250μA, V_{CE}=V_{GE}	0.4		1.2	V
Collector to Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=150A, V_{GE}=2.5V		2.5	9.0	V
Dynamic Characteristics						
Input Capacitance	C_{IES}	V_{CE}=25V, V_{GE}=0V, f=1MHz		4000		pF
Output Capacitance	C_{OES}			38		pF
Reverse Transfer Capacitance	C_{RES}			25		pF

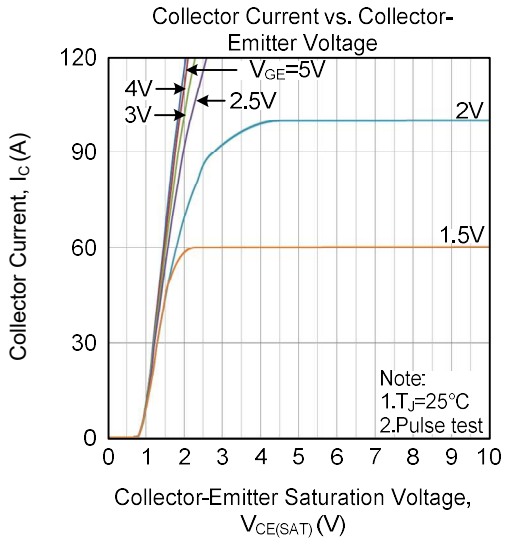
■ TEST CIRCUIT AND WAVEFORMS

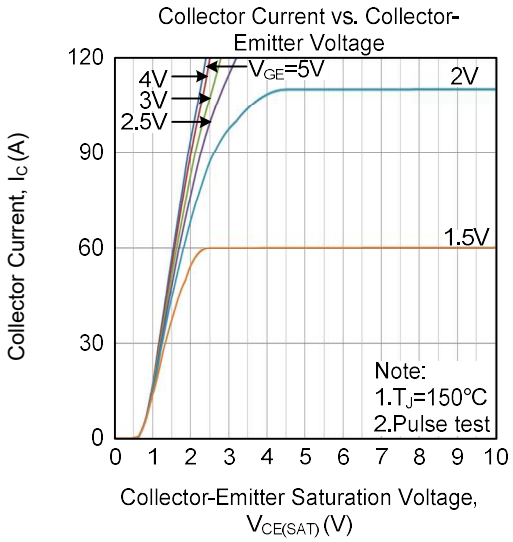
Definition dv/dt = ΔV_{CE} / Δt

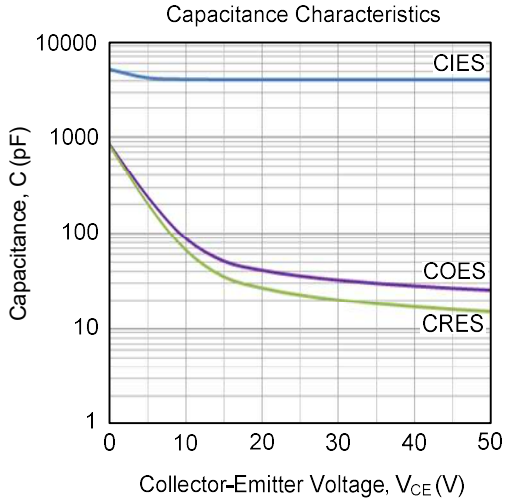


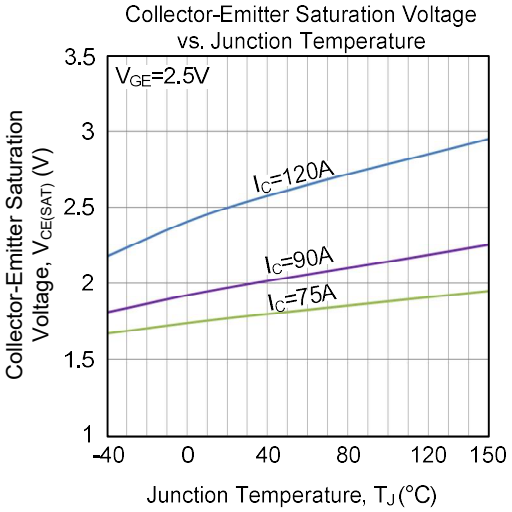
dv/dt TEST WAVEFORMS

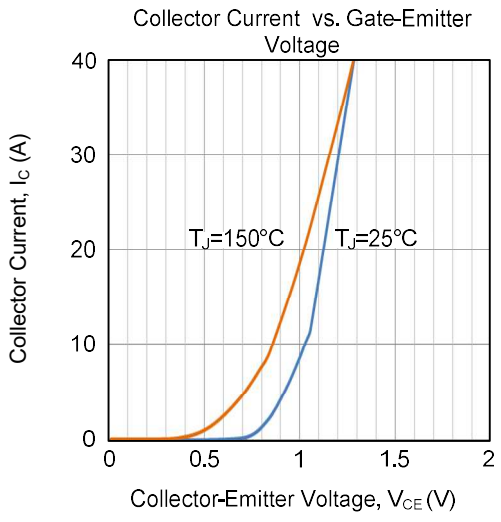
■ TYPICAL CHARACTERISTICS

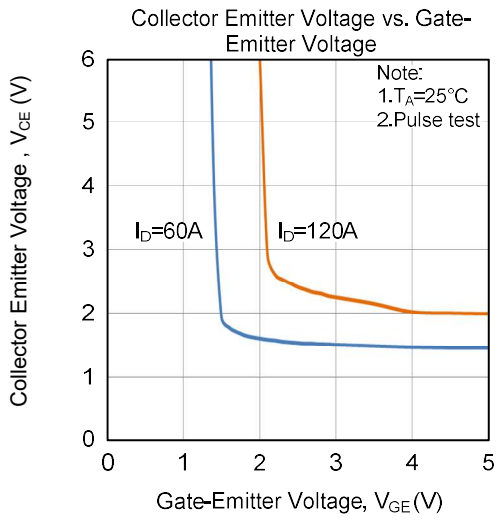




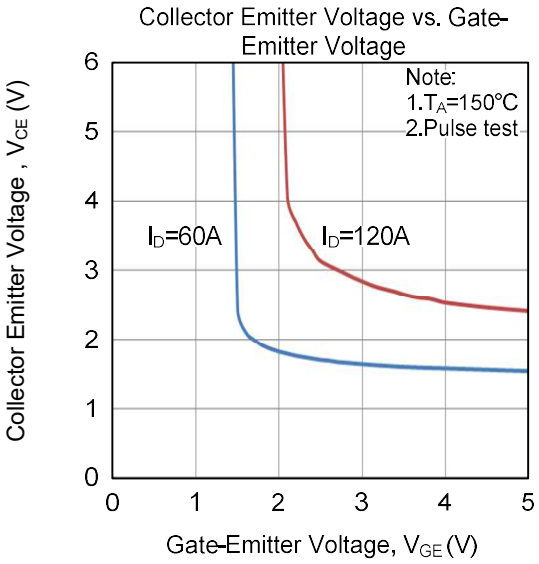








■ TYPICAL CHARACTERISTICS (Cont.)



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