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TIG074E8

N-Channel IGBT

400V, 150A, $V_{CE(sat)}$; 3.8V Single ECH8

Features

- Low-saturation voltage
- Enhancement type
- Mounting Height 0.9mm, Mounting Area 8.12mm²
- Halogen free compliance
- Low voltage drive (2.5V)
- Built-in Gate to Emitter protection diode
- dv/dt guarantee*

Application

- Light-Controlling Flash Applications

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	P-channel	Unit
Collector to Emitter Voltage	V_{CES}		400	V
Gate to Emitter Voltage (DC)	V_{GES}		± 4	V
Gate to Emitter Voltage (Pulse)	V_{GES}	$PW \leq 1\text{ms}$	± 5	V
Collector Current (Pulse)	I_{CP}	$V_{GE}=2.5\text{V}$, $C_M=200\mu\text{F}$	150	A
Maximum Collector to Emitter dv/dt	dv/dt	Turn off $I_C=150\text{A}$, $V_{CE} \leq 320\text{V}$, starting $T_{ch}=25^\circ\text{C}$	400	$\text{V}/\mu\text{s}$
Channel Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

* : Concerning dv/dt (slope of Collector Voltage at the time of Turn-OFF), will be 100% screen-detected in the circuit shown as Fig. 1.

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

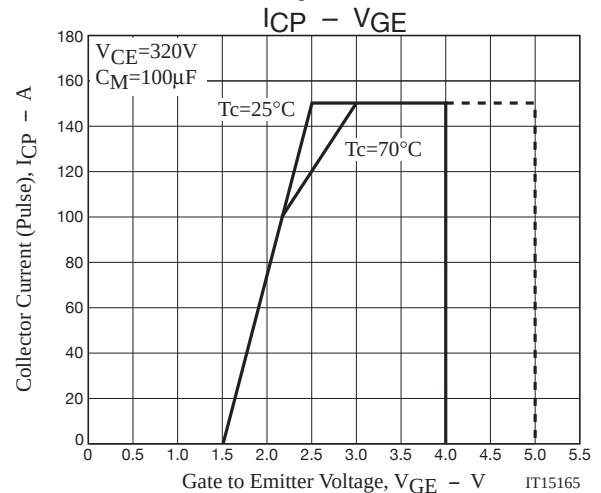
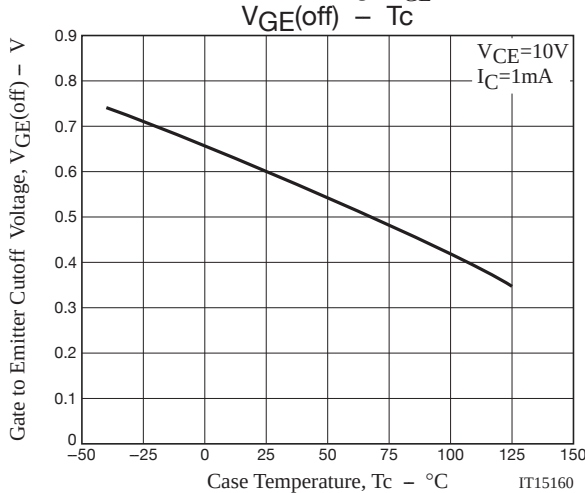
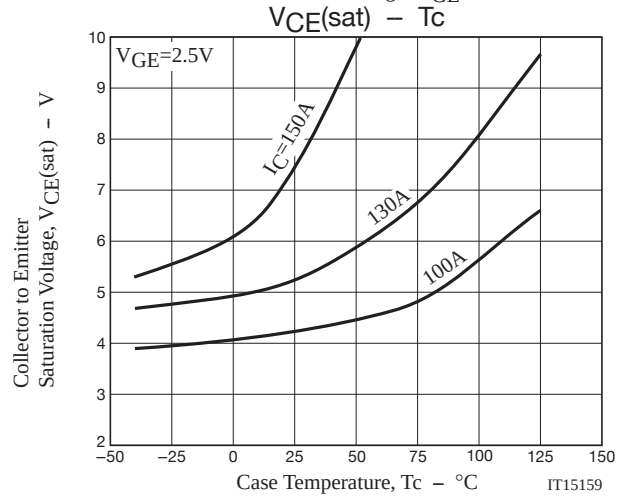
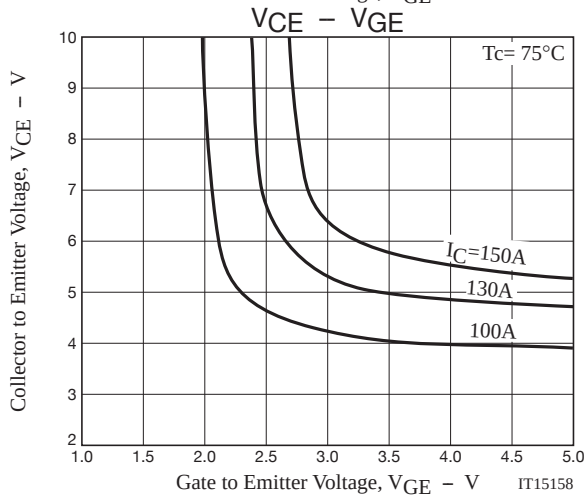
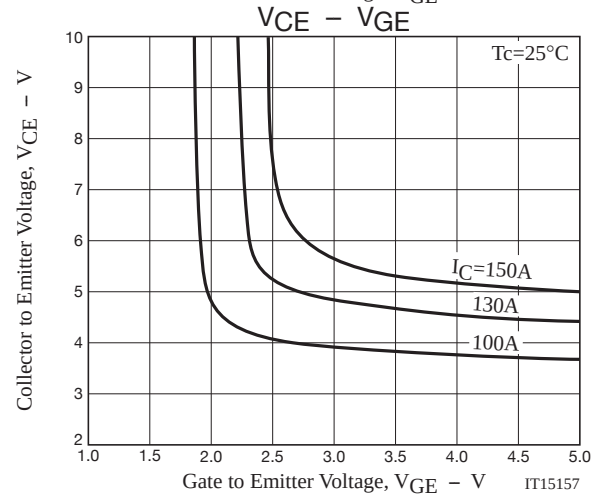
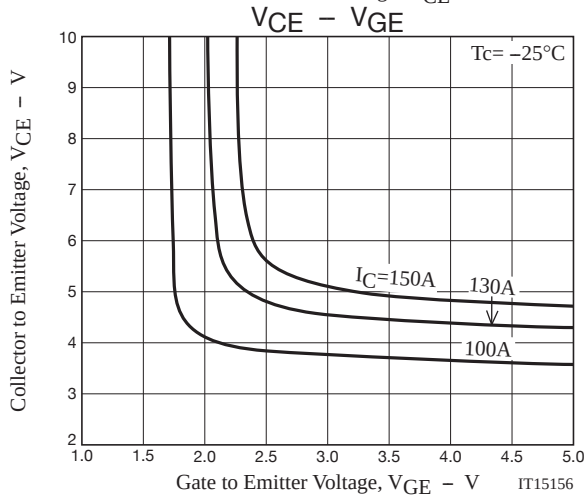
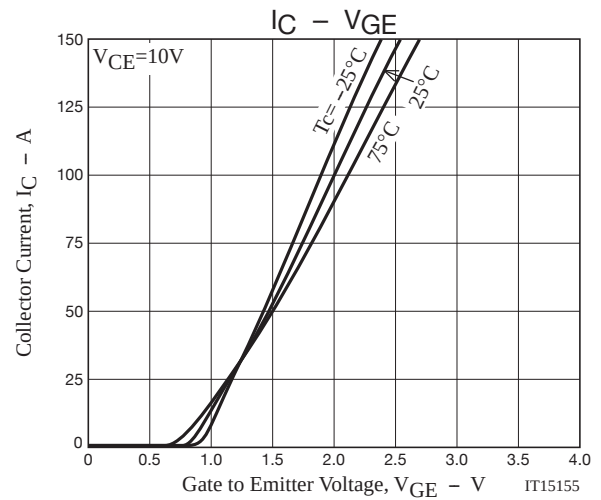
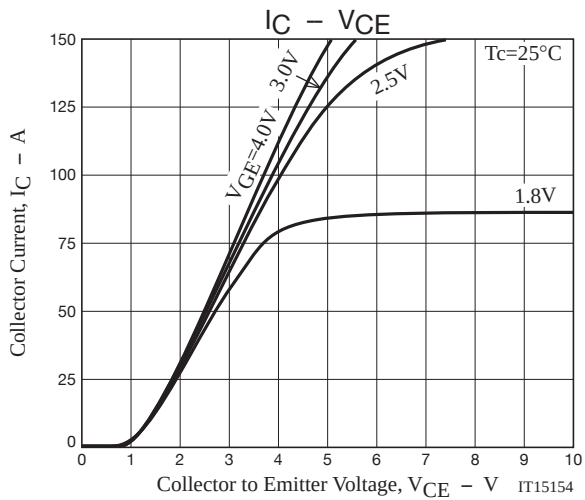
Electrical Characteristics

 at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector to Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2\text{mA}$, $V_{GE}=0\text{V}$	400			V
Collector to Emitter Cutoff Current	I_{CES}	$V_{CE}=320\text{V}$, $V_{GE}=0\text{V}$			10	μA
Gate to Emitter Leakage Current	I_{GES}	$V_{GE}=\pm 4\text{V}$, $V_{CE}=0\text{V}$			± 10	μA
Gate to Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10\text{V}$, $I_C=1\text{mA}$	0.4		0.9	V
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100\text{A}$, $V_{GE}=2.5\text{V}$		3.8	5.4	V
Input Capacitance	C_{ies}	$V_{CE}=10\text{V}$, $f=1\text{MHz}$		3100		pF
Output Capacitance	C_{oes}			32		pF
Reverse Transfer Capacitance	C_{res}			24		pF

ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.



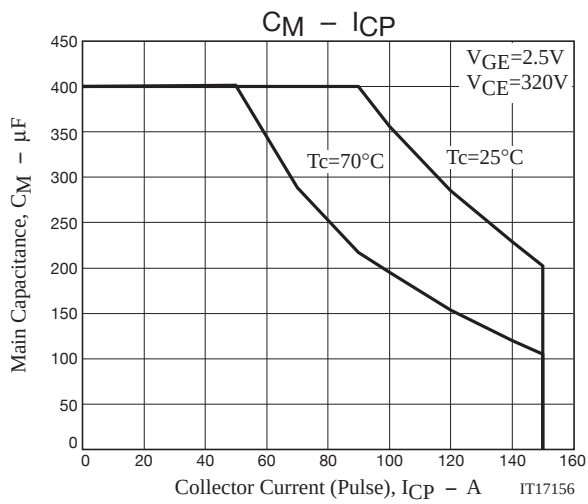
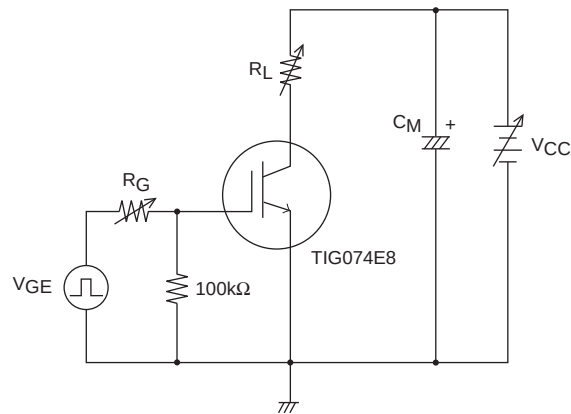


Fig.1 Large Current R Load Switching Circuit

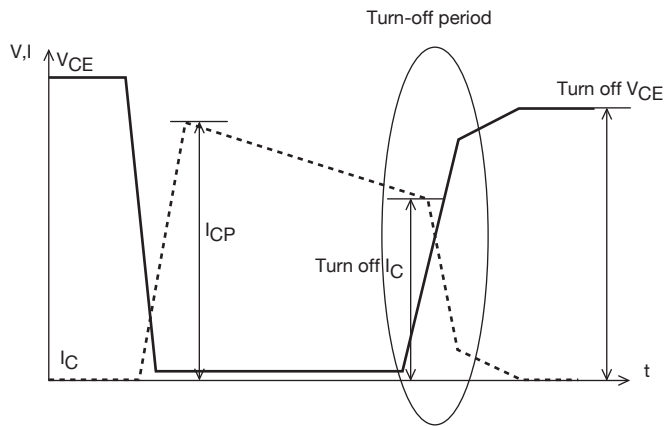
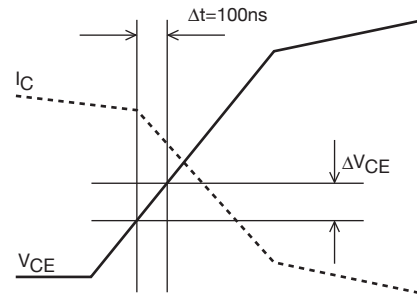


Note1. The collector voltage gradient dv / dt - Turn off I_c safety movement domain to protect the device of Gate-series resistor R_G when it is turned off.

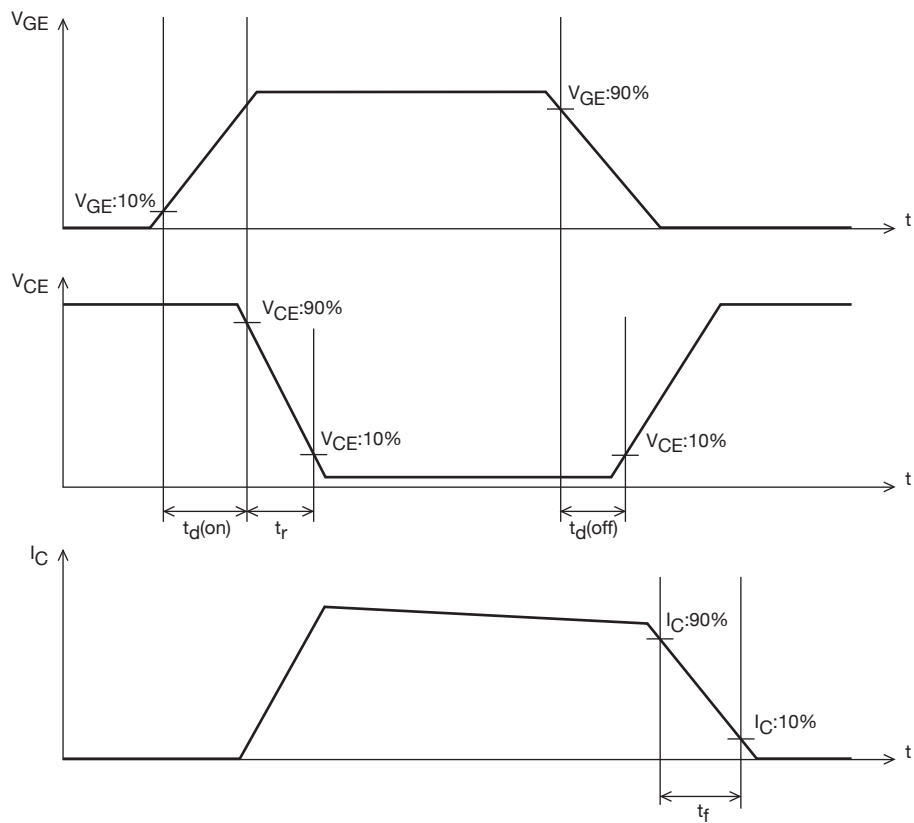
Definition of dv/dt

dv/dt is defined as the maximum slope of the below V_{CE} curve during turn-off period.

$$dv/dt = \Delta V_{CE} / \Delta t = \Delta V_{CE} / 100ns$$

Overall waveform**Enlarged picture of turn-off period**

IT15323

Definition of Switching Time

IT15324

Package Dimensions

TIG074E8-TL-H

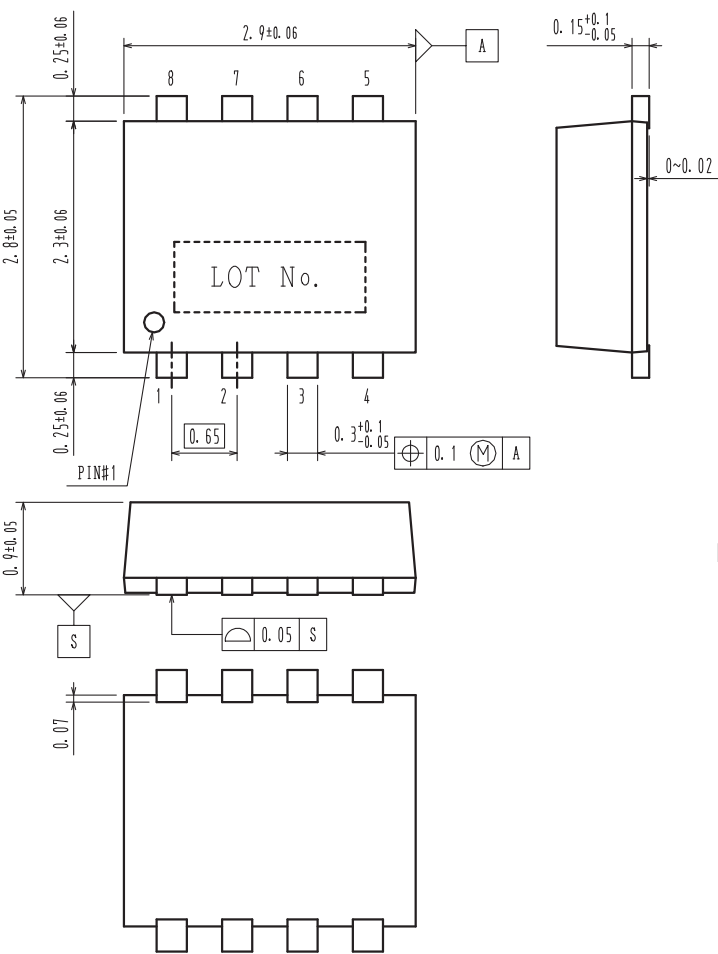
SOT-28FL/ECH8

CASE 318BF

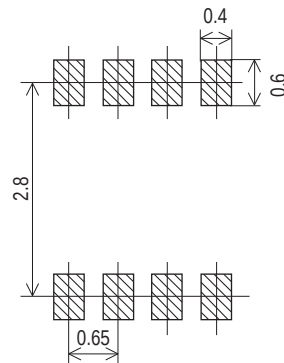
ISSUE O

Unit : mm

- 1: Emitter
- 2: Emitter
- 3: Emitter
- 4: Gate
- 5: Collector
- 6: Collector
- 7: Collector
- 8: Collector



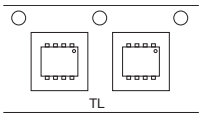
Land Pattern Example



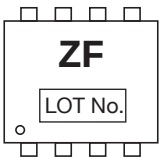
Ordering & Package Information

Device	Package	Shipping	memo
TIG074E8-TL-H	ECH8	3,000 pcs./reel	Pb-Free and Halogen Free

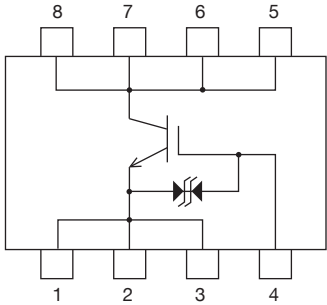
Packing Type: TL



Marking



Electrical Connection



Note on usage : TIG074E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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