

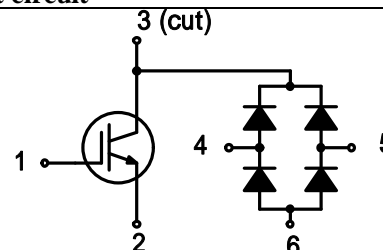
Features

- Built-in IGBT and diode bridge of partial switching PFC circuit Enable to reduce mounting area
 - Low saturation voltage IGBT $V_{CE(sat)} = 1.7V$ max
 - Low saturation voltage diode bridge $V_F = 1.1V$ max
 - The clip lead is adopted for inner lead.
- Low inductance, low resistance, high current capability
The smoke generation and explosion are less likely to occur in case of destruction.

Package

S L A

Equivalent circuit



Applications

- Partial switching PFC

Absolute maximum ratings

($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Ratings	Unit
Collector to Emitter Voltage	V_{CES}	600	V
Gate to Emitter Voltage	V_{GE}	± 30	V
Continuous Collector Current	$I_C(DC)$	30	A
Pulsed Collector Current	I_C (pulse) ¹	100	A
Diode Peak Reverse Voltage	V_{RM}	600	V
Diode Forward Current	I_F	25	A
Diode Peak Surge Forward Current	I_{FSM} ²	200	A
Diode I^2t Limiting Value	I^2t ³	200	A^2s
Maximum Allowable Power Dissipation	P_T ⁴	5 (No.Fin $T_a=25^\circ\text{C}$)	W
		92 ($T_c=25^\circ\text{C}$)	
Thermal Resistance	θ_{j-a} ⁴	25 (Junction-to-Ambient)	$^\circ\text{C}/\text{W}$
	θ_{j-c} ⁴	1.36 (Junction-to-Case)	$^\circ\text{C}/\text{W}$
	θ_{j-c} IGBT	3.91 (Junction-to-Case,IGBT 1 Element Operation)	$^\circ\text{C}/\text{W}$
	θ_{j-c} Di	8.33 (Junction-to-Case,Di 1 Element Operation)	$^\circ\text{C}/\text{W}$
Isolation Voltage	V_{ISO}	1500 (Between Fin and Lead Pin, 1minute AC)	Vrms
Operating Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ 150	$^\circ\text{C}$

1. P_W 10 μs , Duty 1%
3. 1ms P_W 10ms

2. P_W 10ms, Half sinewave, 1shot
4. All Element Operation

The information included herein is believed to be accurate and reliable. However, SANKEN ELECTRIC CO., LTD assumes no responsibility for its use ; nor for any infringements of patents or other rights of third parties that may result from its use.

Electrical characteristics

• IGBT

(Ta=25°C)

Characteristic	Symbol	Test Conditions	Limits			unit
			min	typ	max	
Collector to Emitter Breakdown Voltage	V(BR)CES	IC= 100μA, VGE=0V	600			V
Gate to Emitter Leakage Current	IGES	VGE= ±30V			±500	nA
Collector to Emitter Leakage Current	ICES	VCE= 600V, VGE=0V			100	μA
Gate Threshold Voltage	VGE(th)	VCE= 10V, ID=1mA	3		6	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC= 30A		1.3	1.7	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC= 50A		1.6		V
Input Capacitance	Cies	VCE=20V f=1.0MHz VGE=0V		2500		pF
Output Capacitance	Coes			150		
Reverse Transfer Capacitance	Cres			80		
Turn-On Delay Time	td(on)	IC=50A VCE 300V RG=39Ω VGE=±15V See fig.1		80		ns
Rise Time	tr			190		
Turn-Off Delay Time	td(off)			120		
Fall Time	tf			320		

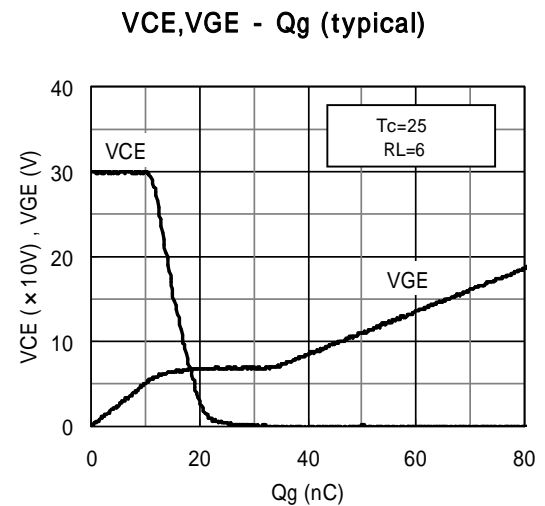
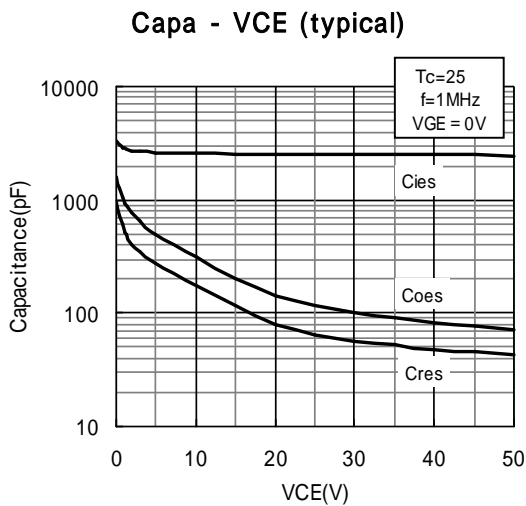
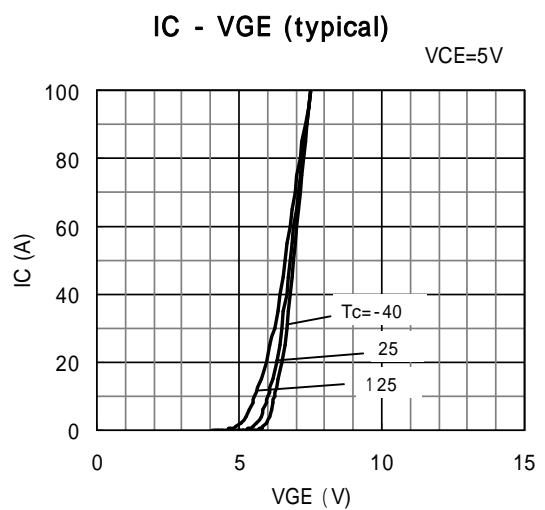
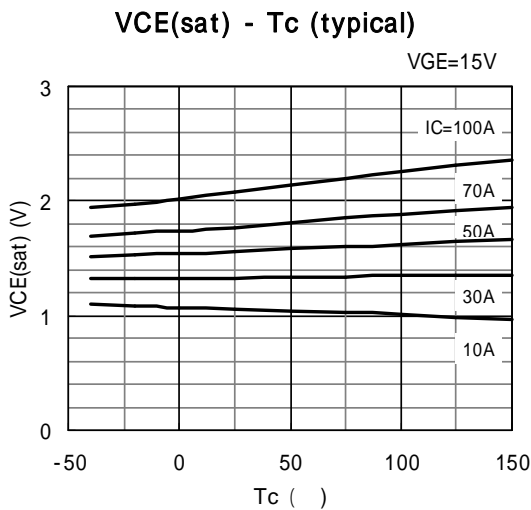
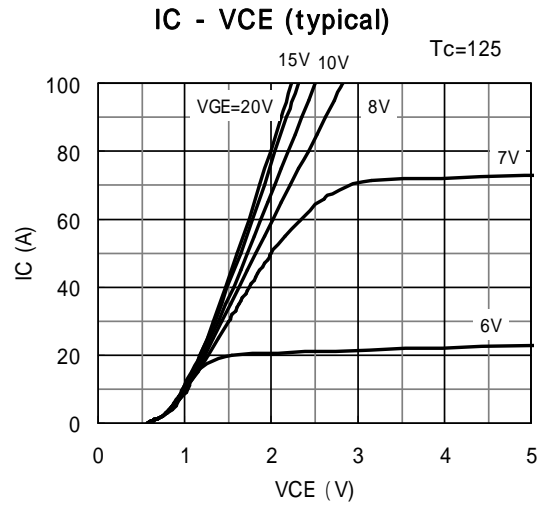
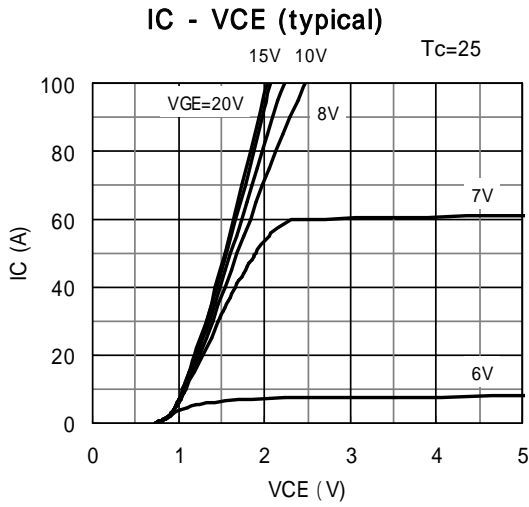
• Di

(Ta=25°C)

Characteristic	Symbol	Test Conditions	Limits		
			min	typ	max
Forward Voltage Drop	VF	IF= 12.5A			1.1
Reverse Leakage Current	IR	VR=600V			50
Reverse Leakage Current Under High Temperature	H·IR	VR=600V, Tj=150°C			200

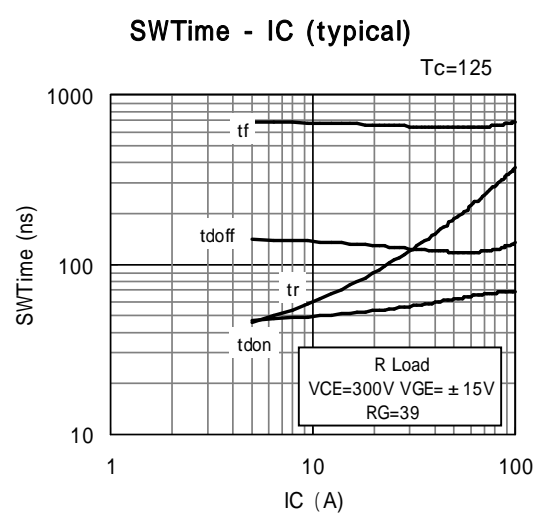
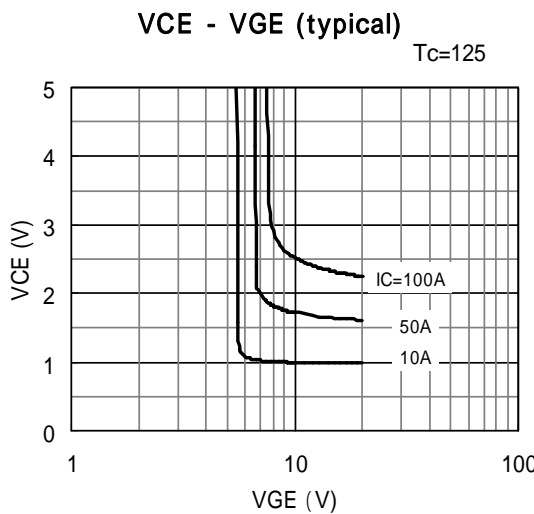
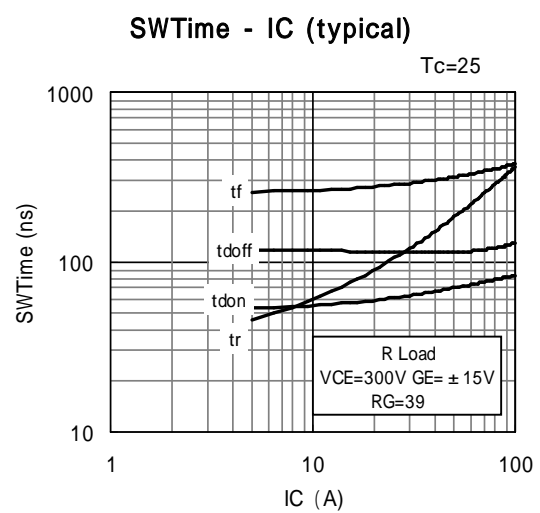
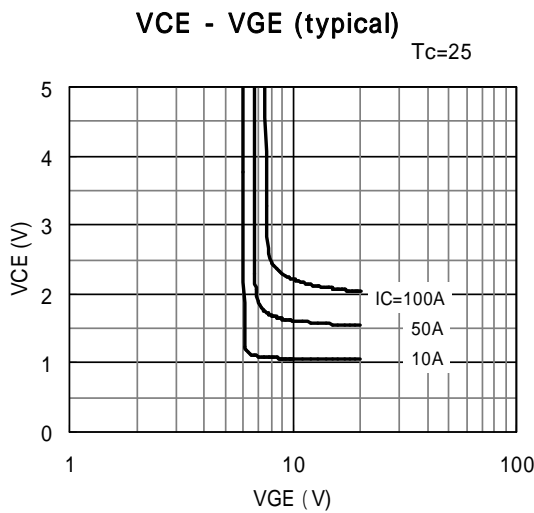
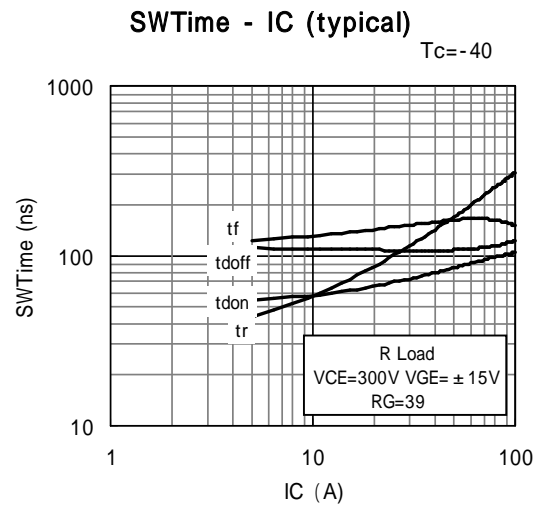
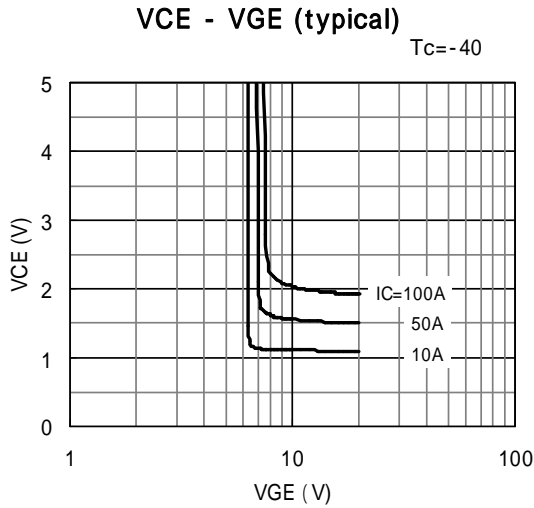
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Electrical characteristics



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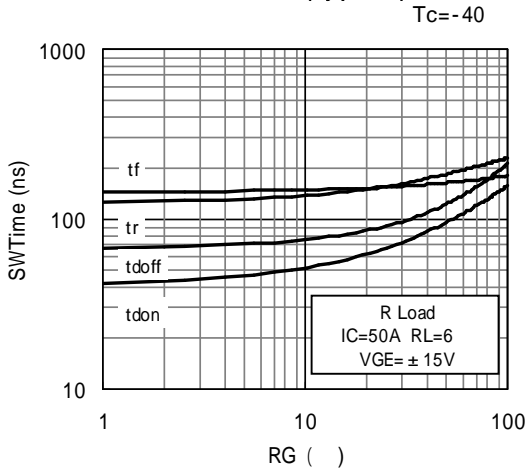
Electrical characteristics



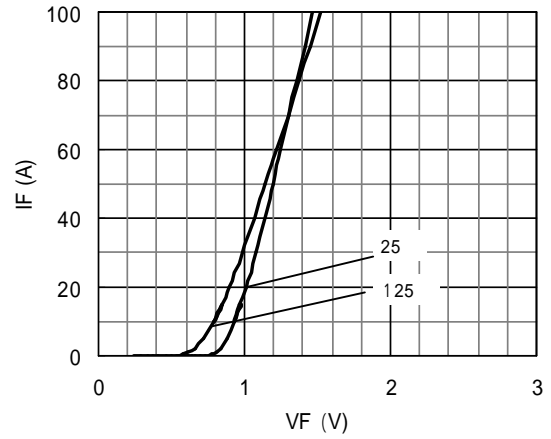
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Electrical characteristics

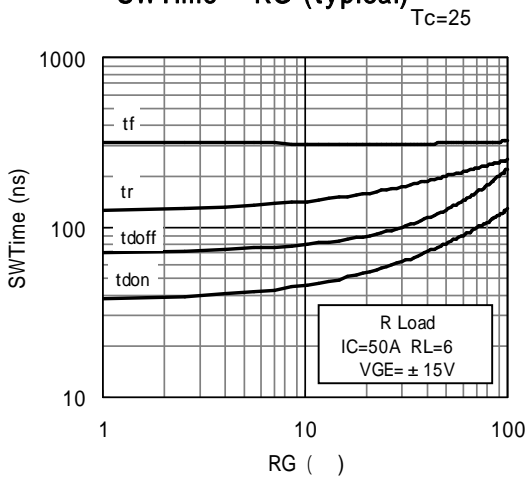
SWTime - RG (typical)



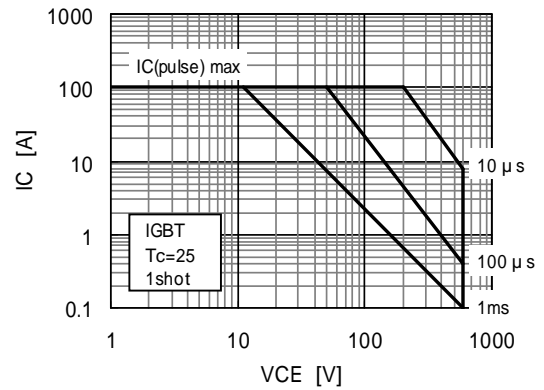
IF - VF (typical)



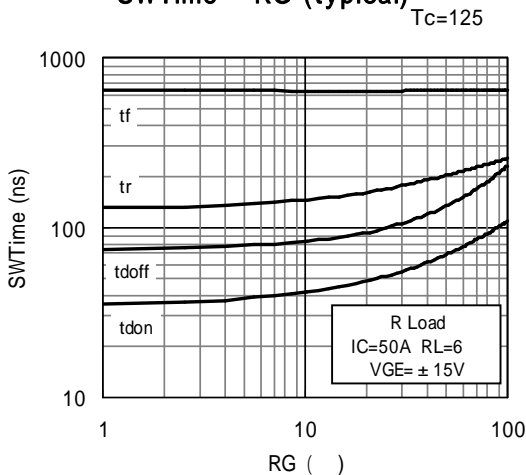
SWTime - RG (typical)



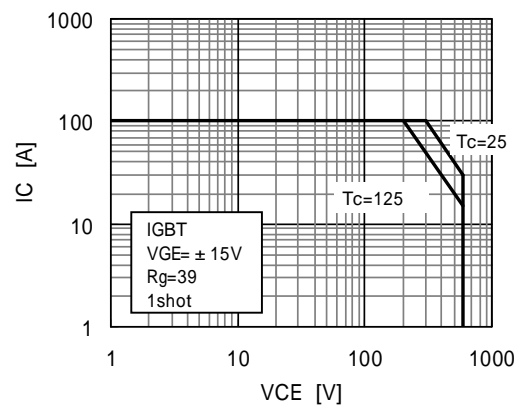
SAFE OPERATING AREA



SWTime - RG (typical)



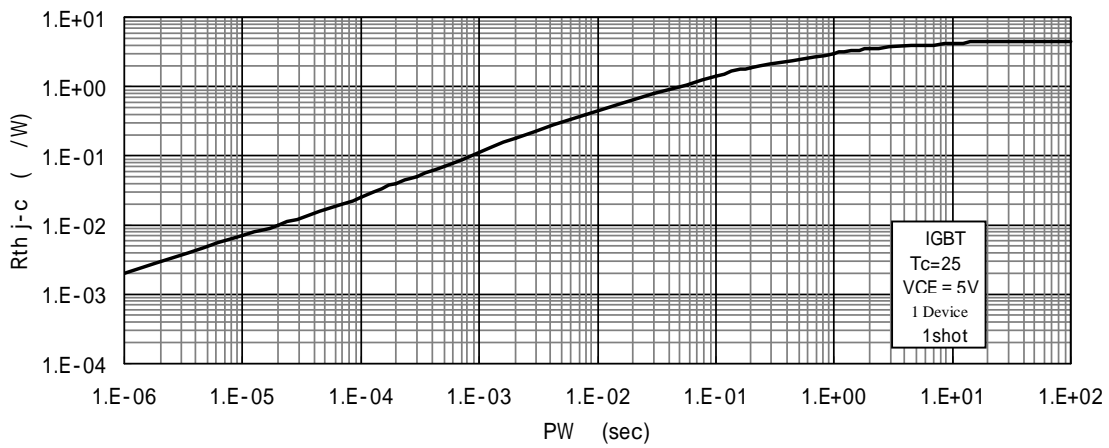
Reverse Bias ASO



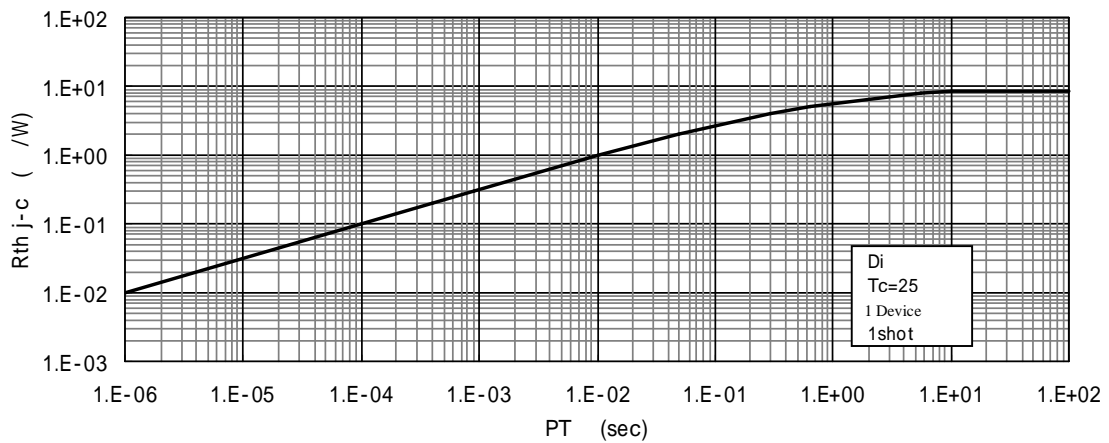
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Electrical characteristics

TRANSIENT THERMAL RESISTANCE - PULSE WIDTH IGBT

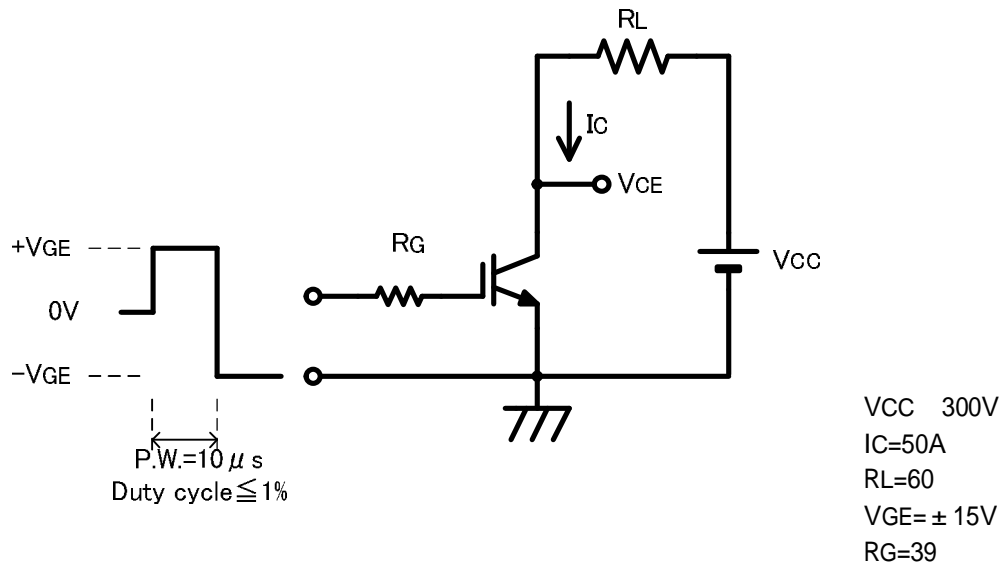


TRANSIENT THERMAL RESISTANCE - PULSE WIDTH Di

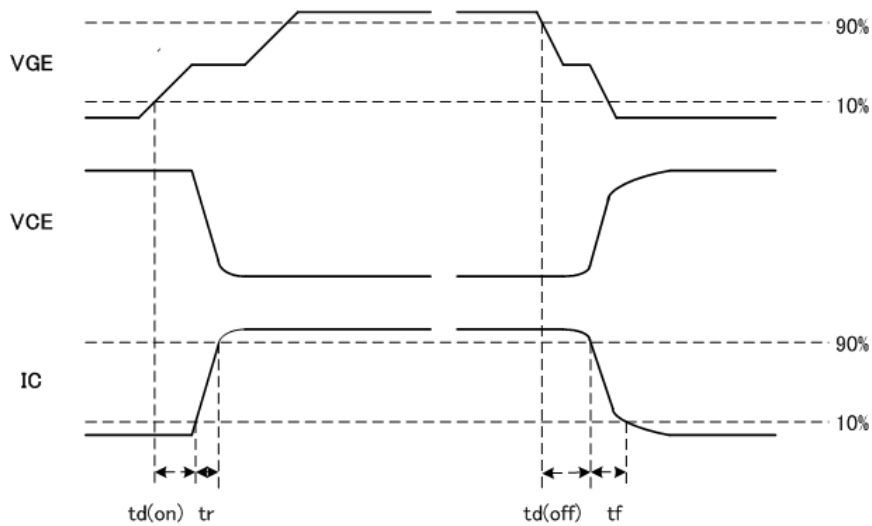


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Fig.1 Switching Time Test Method



(a) Test Circuit



(b) Waveforms

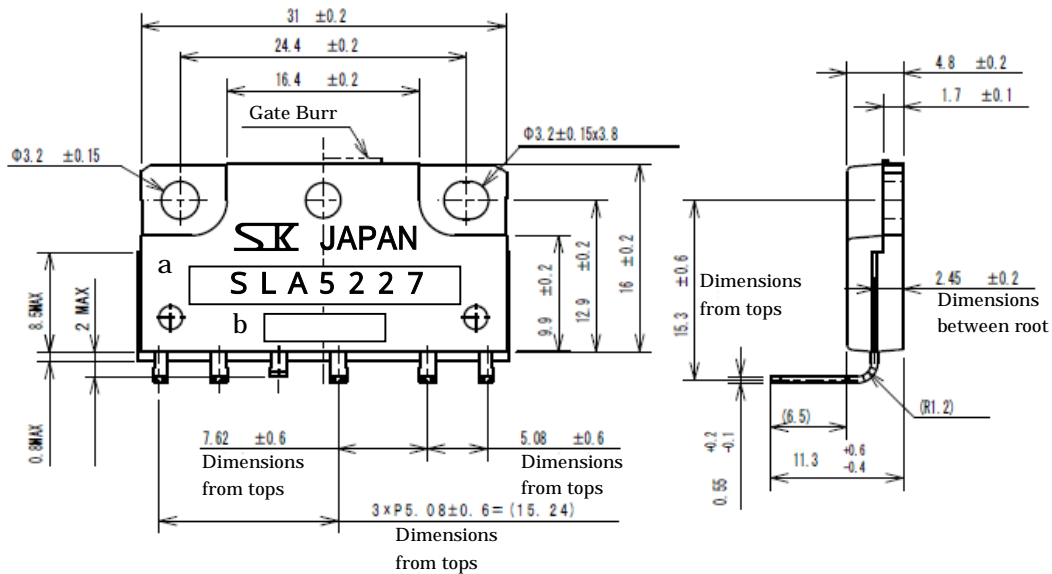
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Outline

SLA (LF No. 822)

Dimensions
between root

Dimensions
from tops



a : Type No.
b : Lot No.

Weight Approx. 6g

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