SANKEN ELECTRIC

S L A 5 2 2 7

Oct.2010

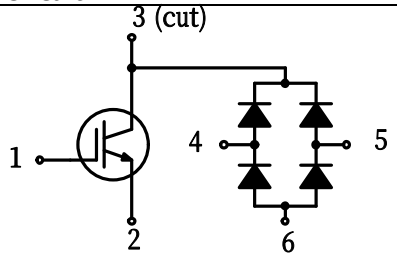
Features

- Built-in IGBT and diode bridge of partial switching PFC circuit Enable to reduce mounting area
- Low saturation voltage IGBT VCE(sat) = 1.7V max
- Low saturation voltage diode bridge VF = 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

(Ta=25□)

Characteristic	Symbol	Ratings	Unit
Collector to Emitter Voltage	VCES	600	V
Gate to Emitter Voltage	VGE	±30	V
Continuous Collector Current	IC(DC)	30	A
Pulsed Collector Current	IC (pulse) ※1	100	A
Diode Peak Reverse Voltage	VRM	600	V
Diode Forward Current	IF	25	A
Diode Peak Surge Forward Current	IFSM ※2	200	A
Diode I^2t Limiting Value	I^2t ※3	200	A^2s
Maximum Allowable Power Dissipation	PT※4	5 (No.Fin Ta=25°C)	W
		92 (Tc=25°C)	
Thermal Resistance	θj-a※4	25 (Junction-to-Ambient)	°C /W
	θj-c※4	1.36 (Junction-to-Case)	°C /W
	θj-c IGBT	3.91 (Junction-to-Case,IGBT 1 Element Operation)	°C /W
	θj-c Di	8.33 (Junction-to-Case,Di 1 Element Operation)	°C /W
Isolation Voltage	VISO	1500 (Between Fin and Lead Pin, 1minute AC)	Vrms
Operating Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-40～150	°C

※1. PW≦10μs, Duty≦1%　※2. PW≦10ms, Half sinewave, 1shot
※3. 1ms≦PW≦10ms　※4. All Element Operation

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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)

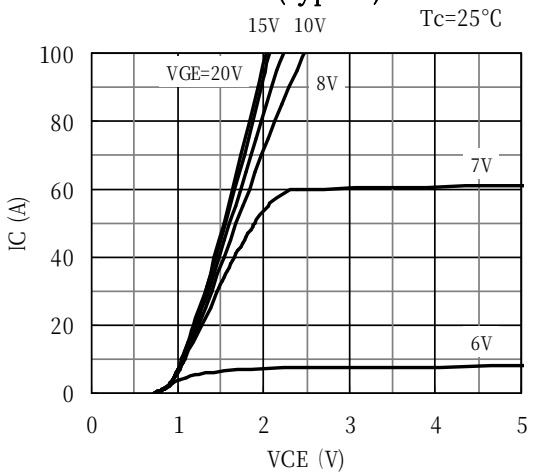
Characteristic	Symbol	Test Conditions	Limits			
			min	typ	max	
Forward Voltage Drop	VF	IF= 12.5A			1.1	
Reverse Leakage Current	IR	VR=600V			50	
Reverse Leakage Current Under High Temperature	H·IR	VR=600V,Tj=150°C			200	

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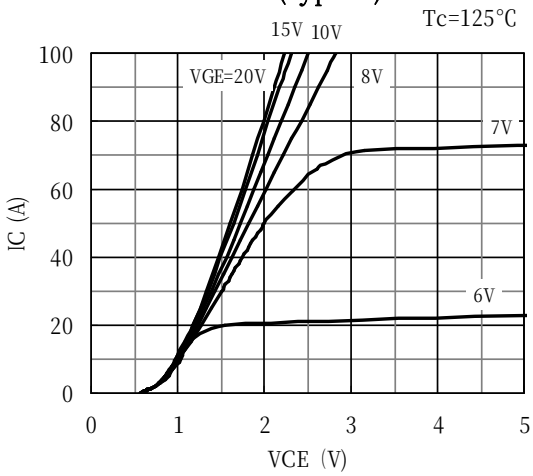
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Electrical characteristics

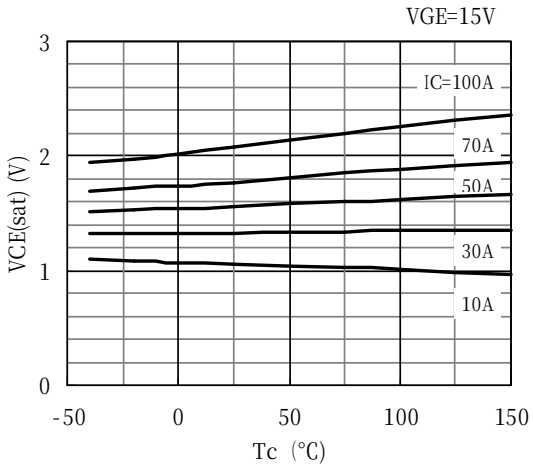
IC - VCE (typical)



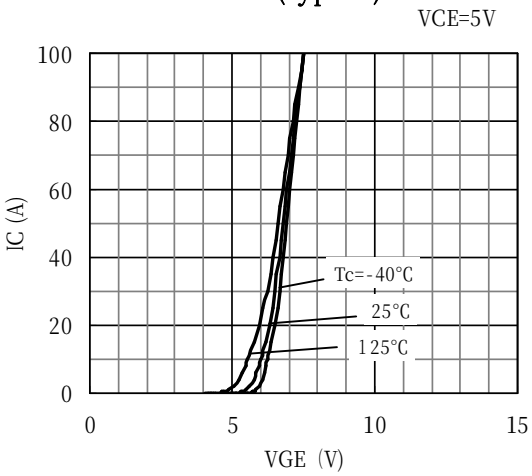
IC - VCE (typical)



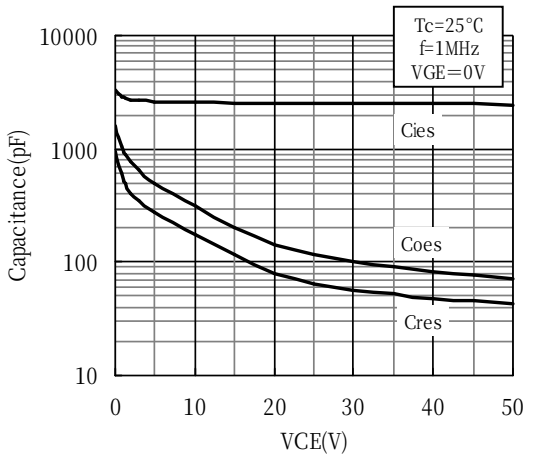
VCE(sat) - Tc (typical)



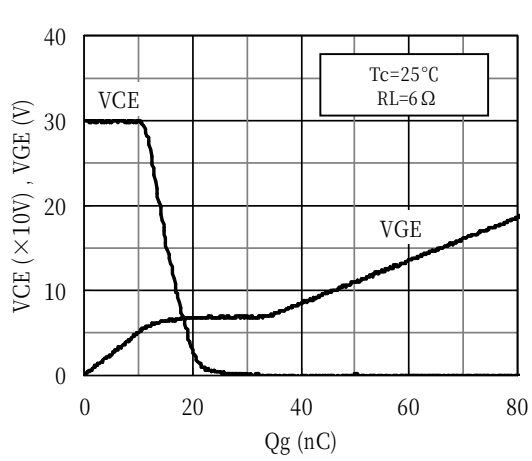
IC - VGE (typical)



Capa - VCE (typical)



VCE,VGE - Qg (typical)



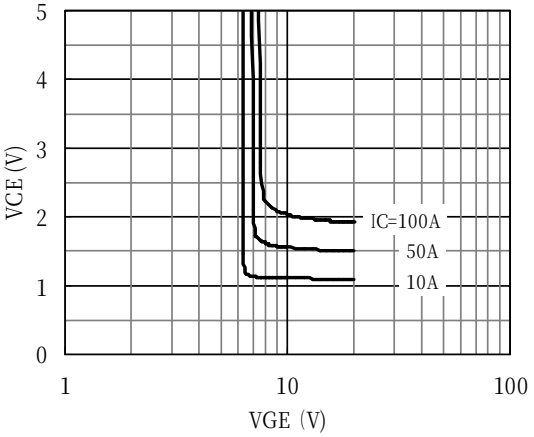
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Electrical characteristics

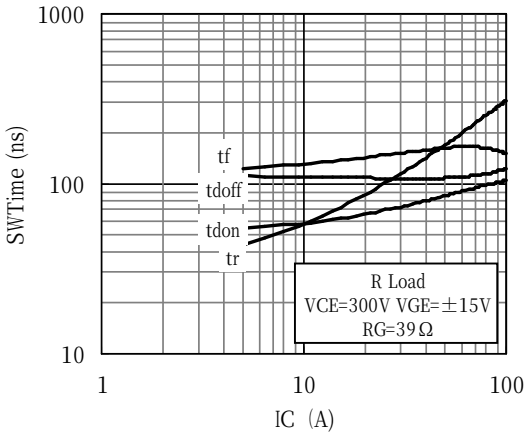
VCE - VGE (typical)

Tc=-40°C



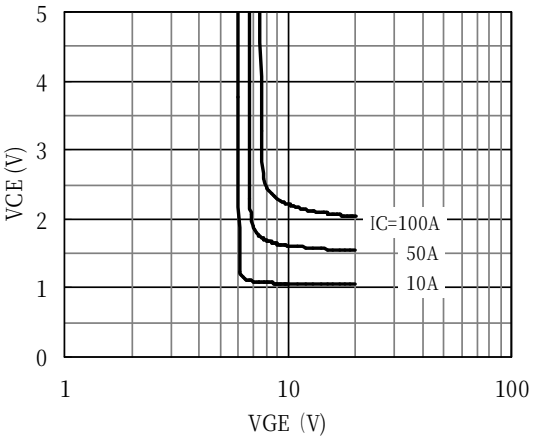
SWTime - IC (typical)

Tc=-40°C



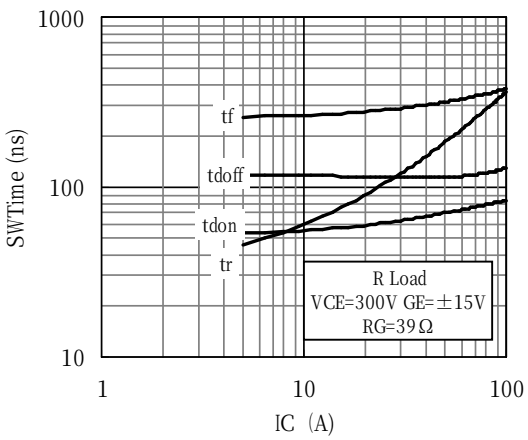
VCE - VGE (typical)

Tc=25°C



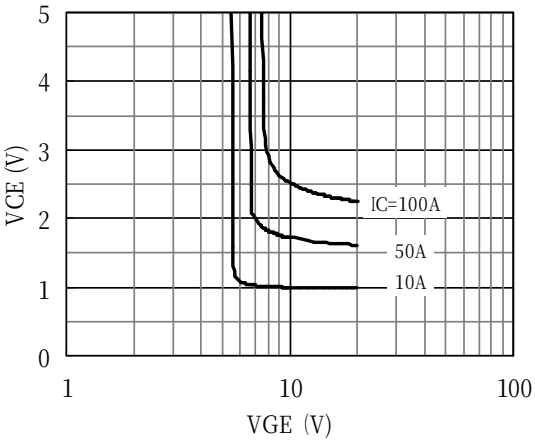
SWTime - IC (typical)

Tc=25°C



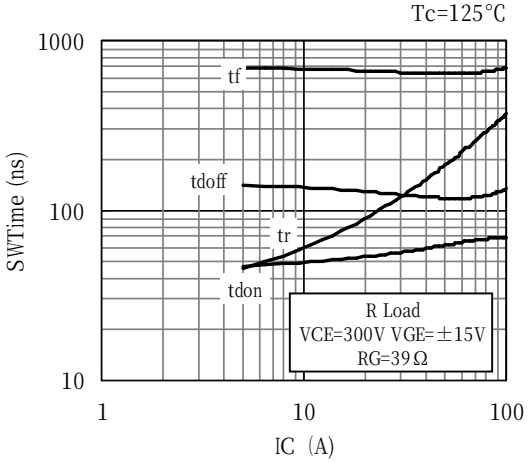
VCE - VGE (typical)

Tc=125°C



SWTime - IC (typical)

Tc=125°C



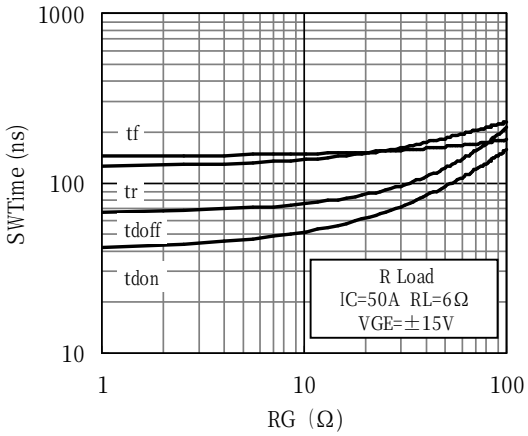
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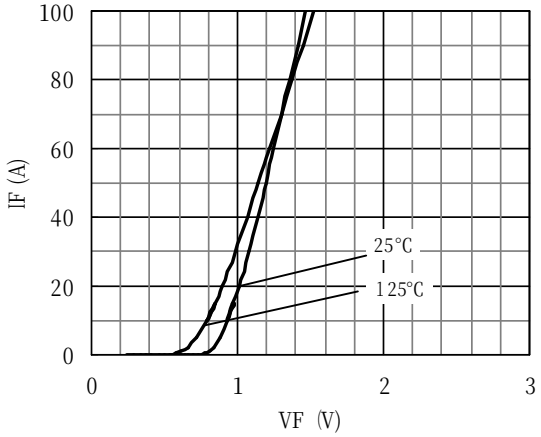
Electrical characteristics

SWTime - RG (typical)

Tc=-40°C

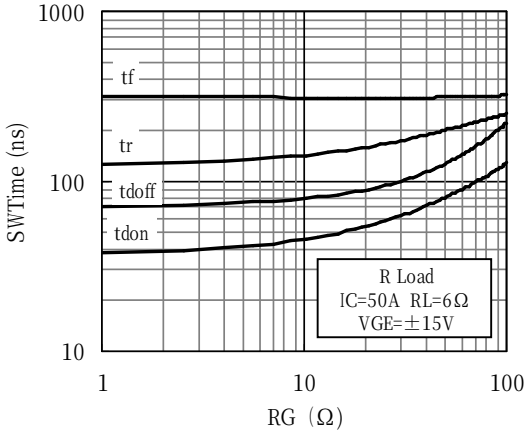


IF - VF (typical)

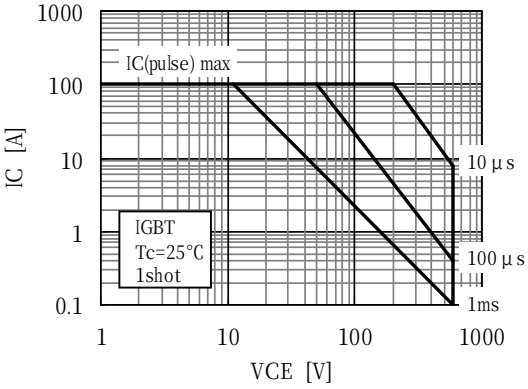


SWTime - RG (typical)

Tc=25°C

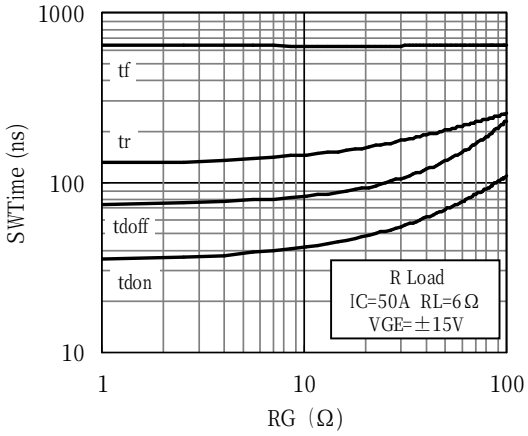


SAFE OPERATING AREA

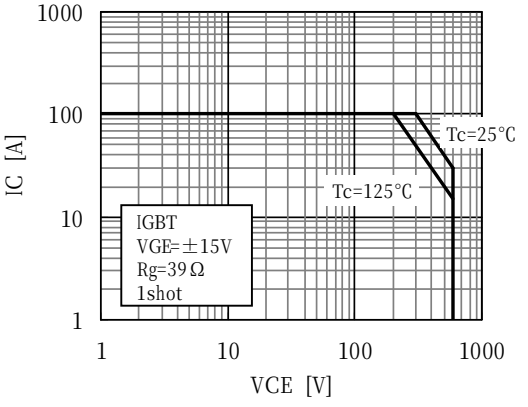


SWTime - RG (typical)

Tc=125°C



Reverse Bias ASO

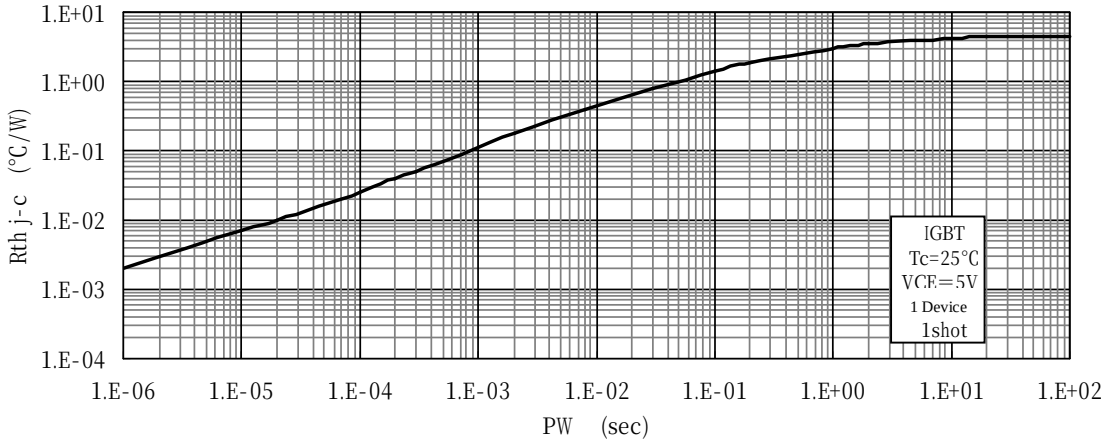


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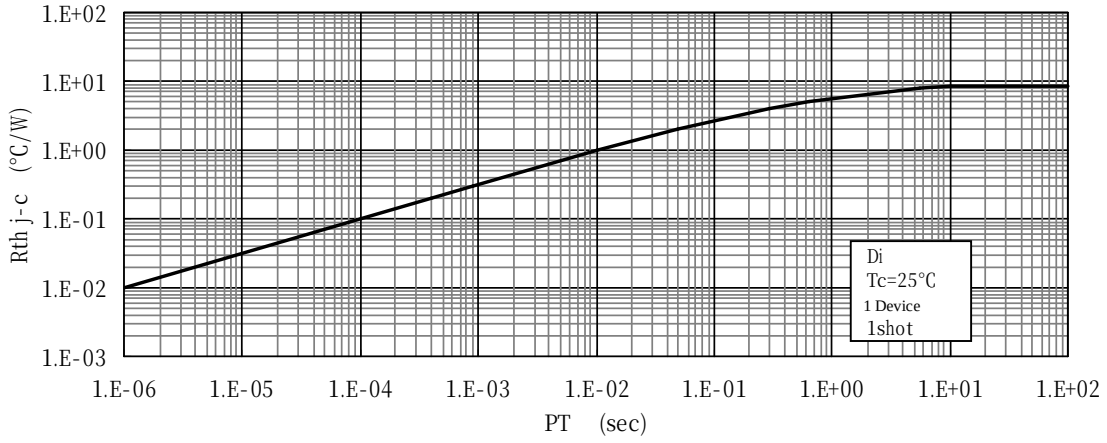
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Electrical characteristics

TRANSIENT THERMAL RESISTANCE - PULSE WIDTH IGBT



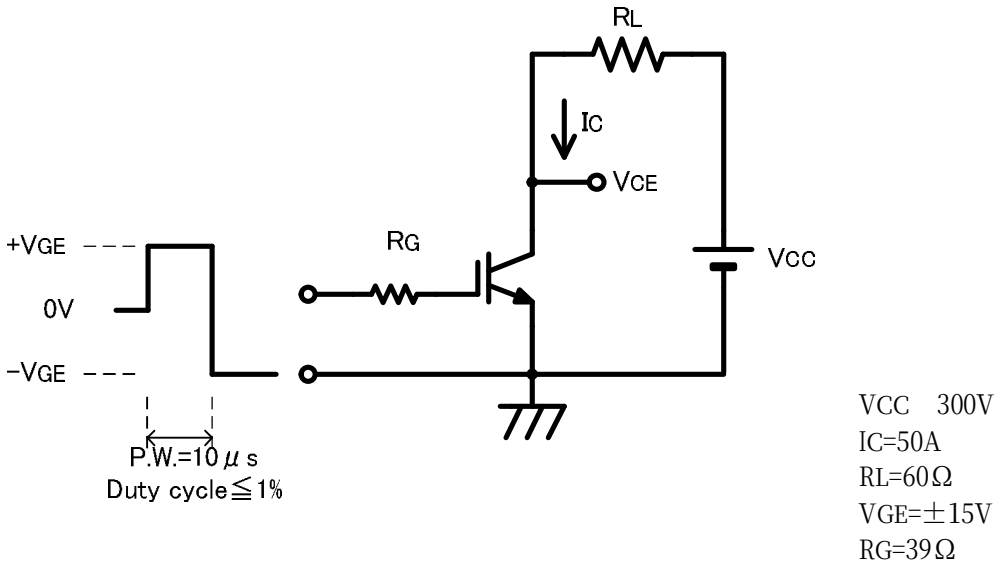
TRANSIENT THERMAL RESISTANCE - PULSE WIDTH Di



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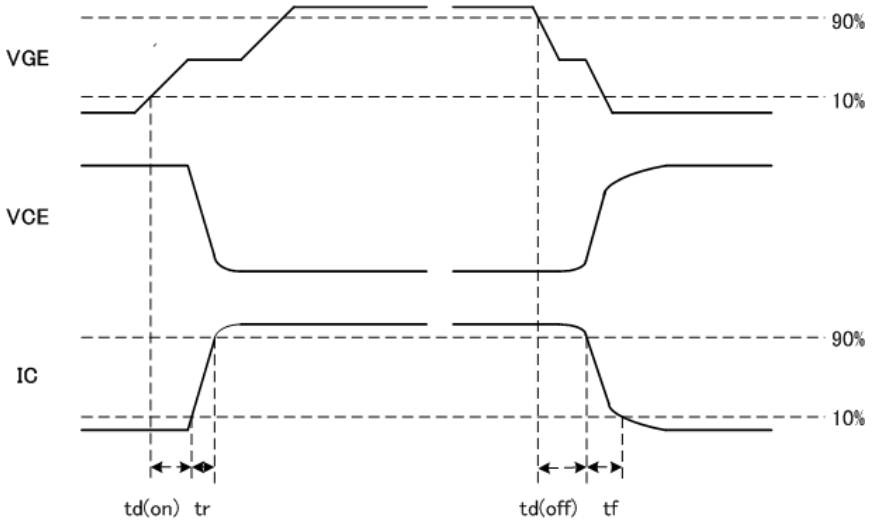
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Fig.1 Switching Time Test Method



VCC 300V
IC=50A
RL=60Ω
VGE=±15V
RG=39Ω

(a) Test Circuit



(b) Waveforms

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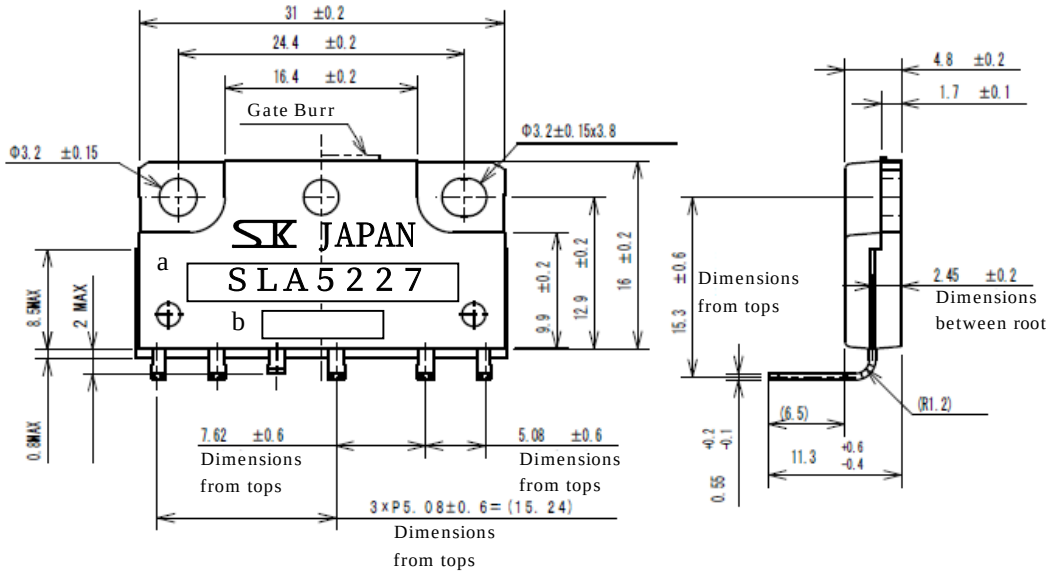
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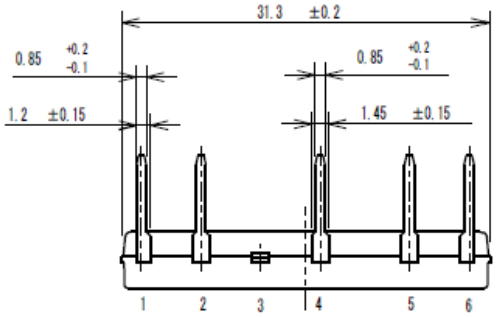
Outline

SLA (LF No. 822)

Dimensions between root

Dimensions from tops





a：Type No.
b：Lot No.

Weight Approx. 6g

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