

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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## 2SK2554

### Silicon N Channel MOS FET

REJ03G1016-0600  
(Previous: ADE-208-359D)  
Rev.6.00  
Sep 07, 2005

#### Application

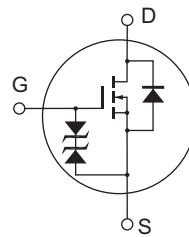
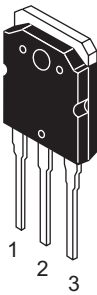
High speed power switching

#### Features

- Low on-resistance
- $R_{DS(on)} = 4.5 \text{ m}\Omega$  typ.
- High speed switching
- 4 V gate drive device can be driven from 5 V source

#### Outline

RENESAS Package code: PRSS0004ZE-A  
(Package name: TO-3P)



1. Gate
2. Drain  
(Flange)
3. Source

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DS</sub>	60	V
Gate to source voltage	V <sub>GS</sub>	±20	V
Drain current	I <sub>D</sub>	75	A
Drain peak current	I <sub>D(pulse)</sub> *1	300	A
Body to drain diode reverse drain current	I <sub>DR</sub> *2	75	A
Avalanche current	I <sub>AP</sub> *3	50	A
Avalanche energy	E <sub>AR</sub> *3	214	mJ
Channel dissipation	P <sub>ch</sub> *2	150	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

- Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1 %  
 2. Value at T<sub>c</sub> = 25°C  
 3. Value at T<sub>ch</sub> = 25°C, R<sub>g</sub> ≥ 50 Ω

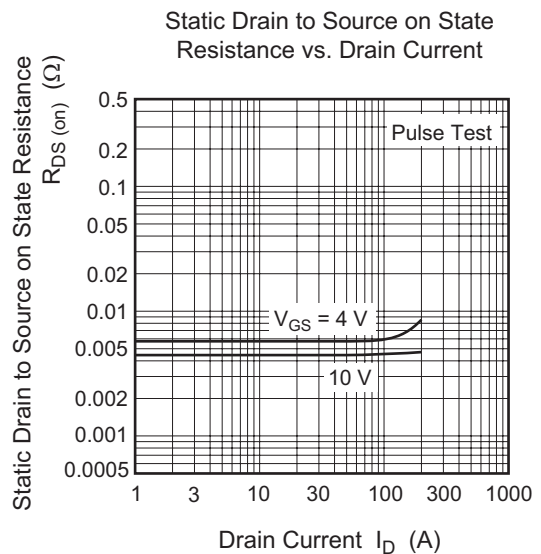
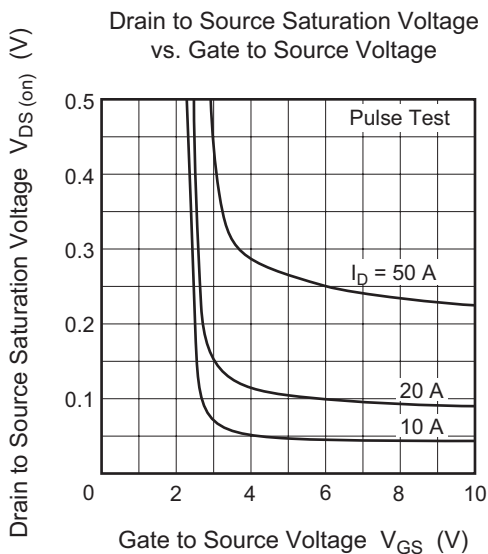
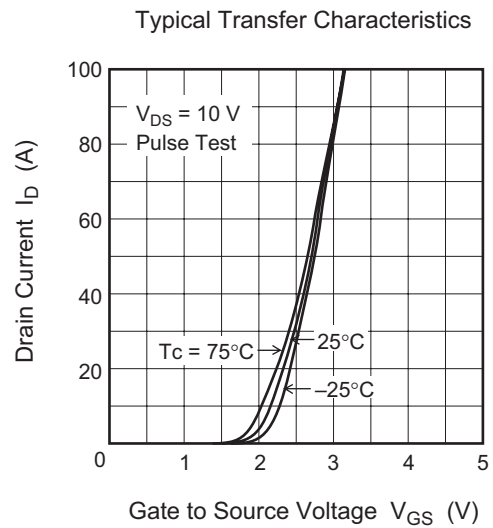
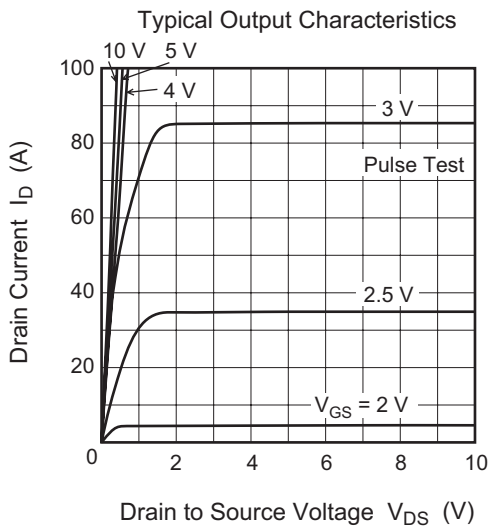
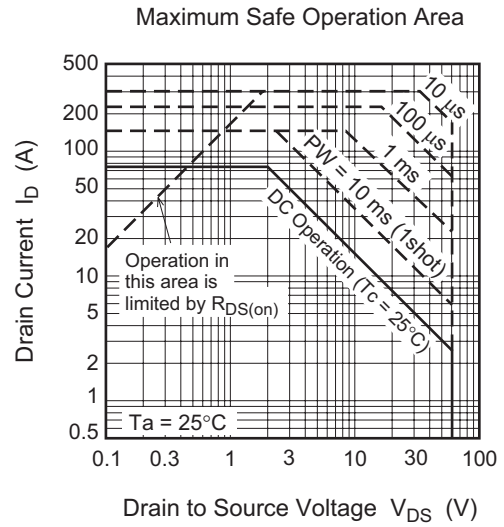
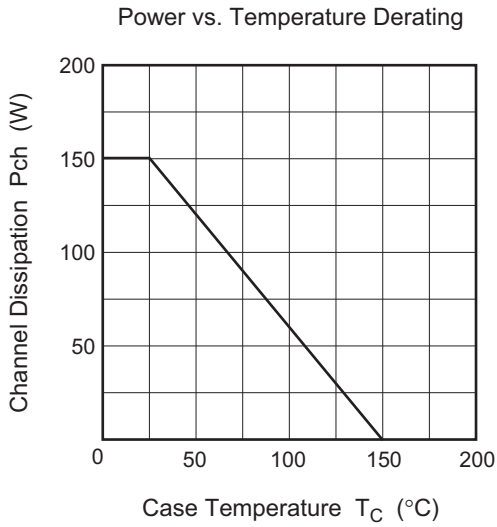
## Electrical Characteristics

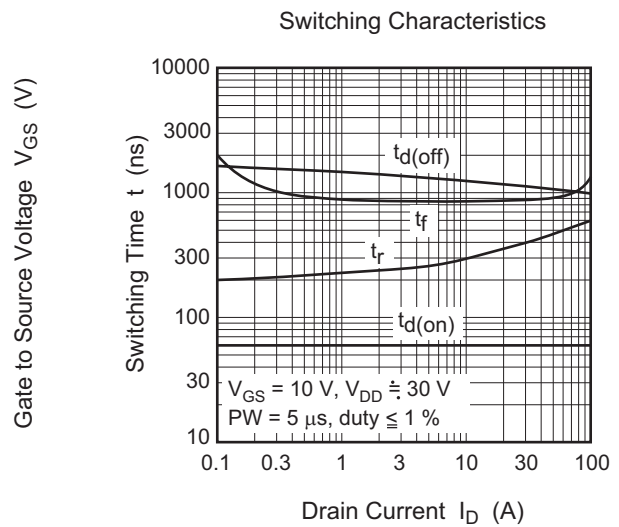
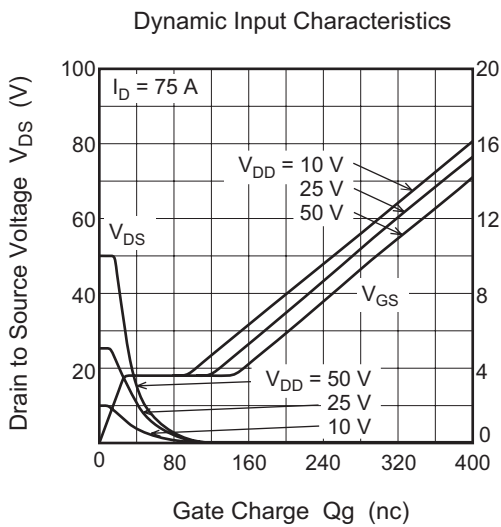
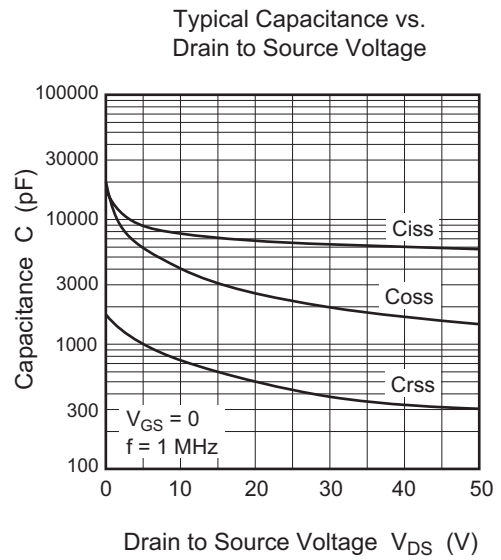
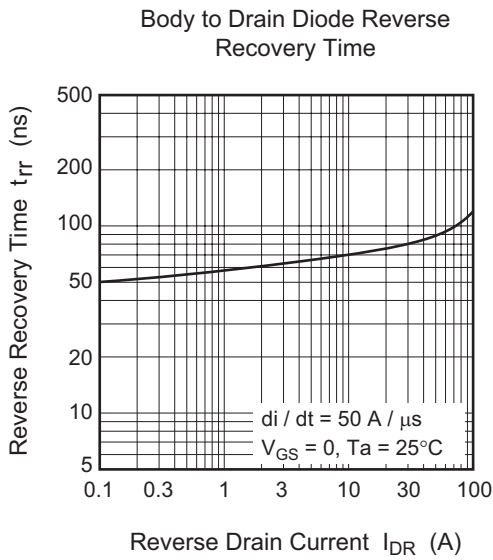
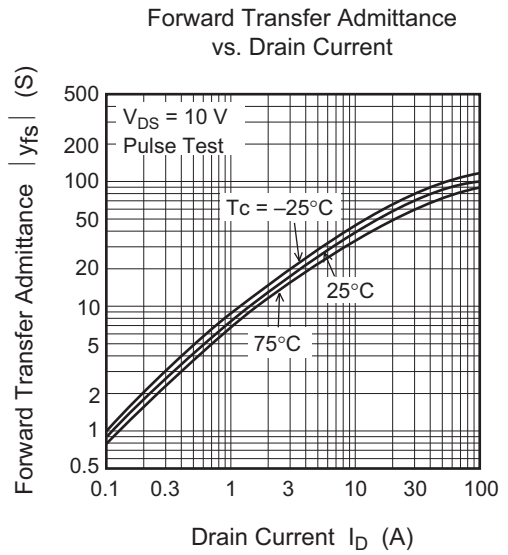
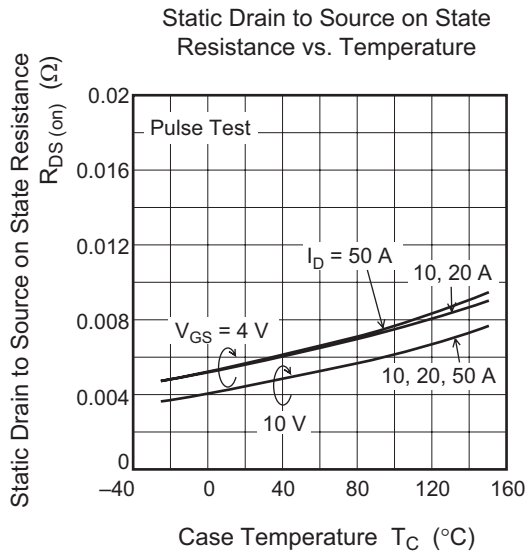
(Ta = 25°C)

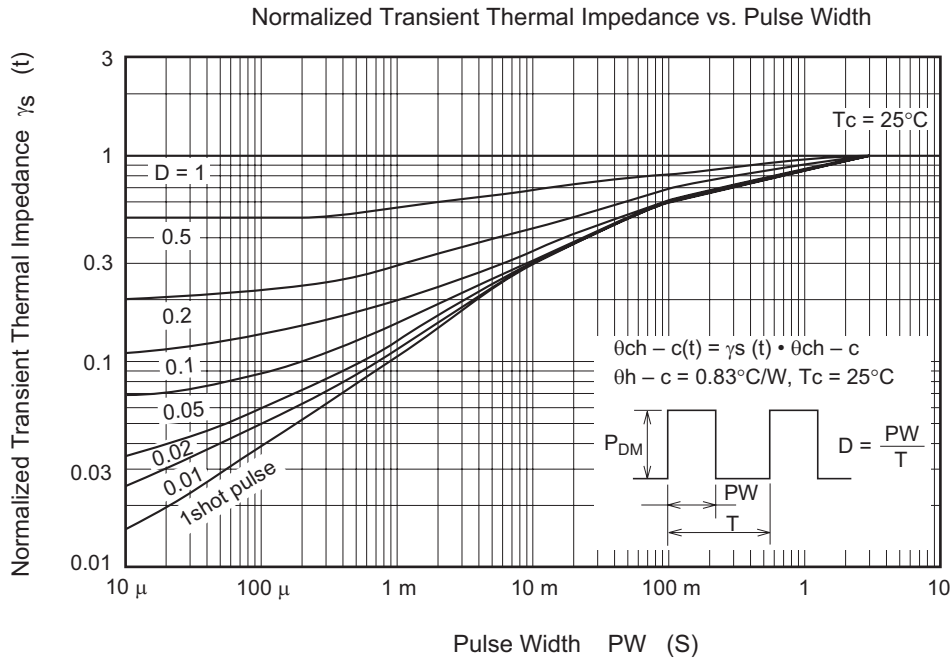
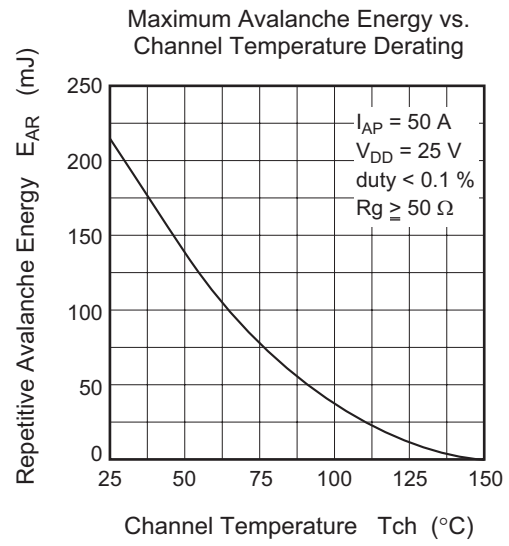
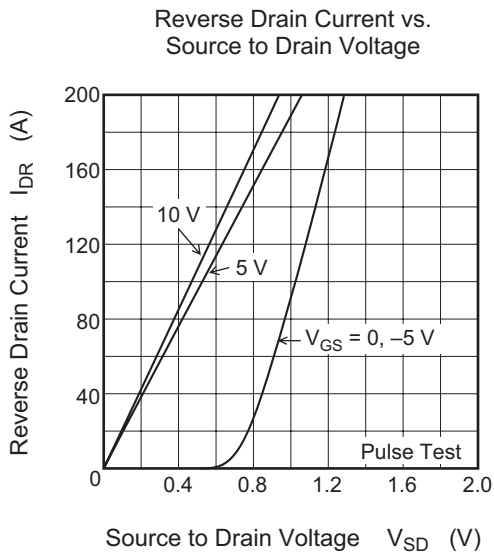
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	60	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	100	μA	V <sub>DS</sub> = 60 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.0	—	2.0	V	I <sub>D</sub> = 1 mA, V <sub>DS</sub> = 10 V
Static drain to source on state resistance	R <sub>DS(on)</sub>	—	4.5	6	mΩ	I <sub>D</sub> = 40 A, V <sub>GS</sub> = 10 V*4
		—	5.8	10	mΩ	I <sub>D</sub> = 40 A, V <sub>GS</sub> = 4 V*4
Forward transfer admittance	y <sub>fs</sub>	50	80	—	S	I <sub>D</sub> = 40 A, V <sub>DS</sub> = 10 V*4
Input capacitance	C <sub>iss</sub>	—	7700	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0, f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	4100	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	760	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	60	—	ns	I <sub>D</sub> = 40 A, V <sub>GS</sub> = 10 V, R <sub>L</sub> = 0.75 Ω
Rise time	t <sub>r</sub>	—	420	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	1200	—	ns	
Fall time	t <sub>f</sub>	—	900	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	0.95	—	V	I <sub>F</sub> = 75 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	105	—	ns	I <sub>F</sub> = 75 A, V <sub>GS</sub> = 0 di <sub>F</sub> / dt = 50 A / μs

Note: 4. Pulse Test

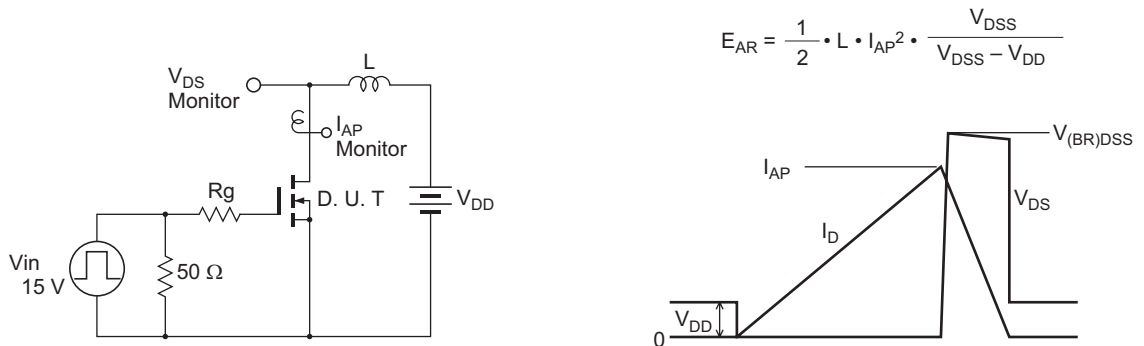
Main Characteristics

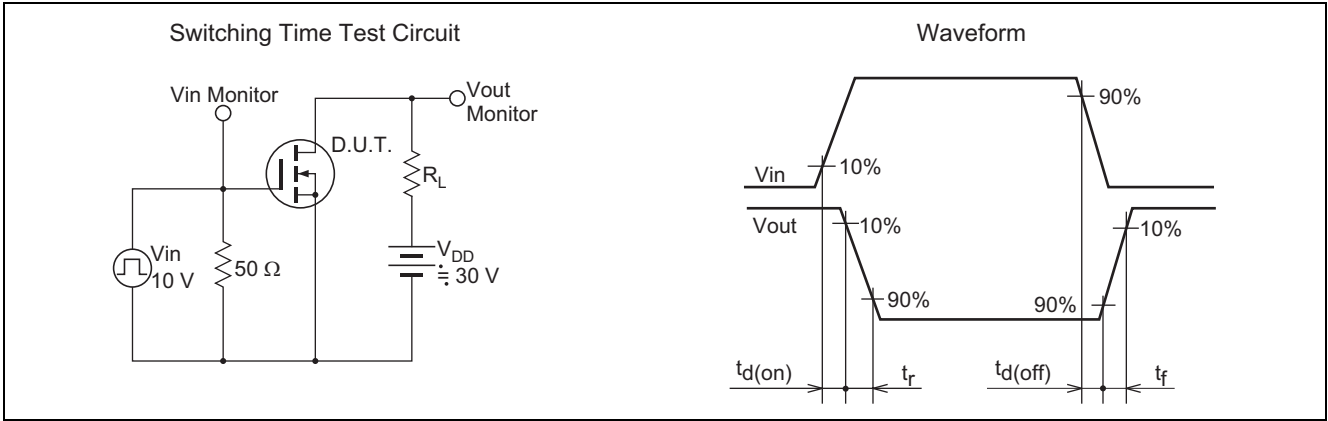






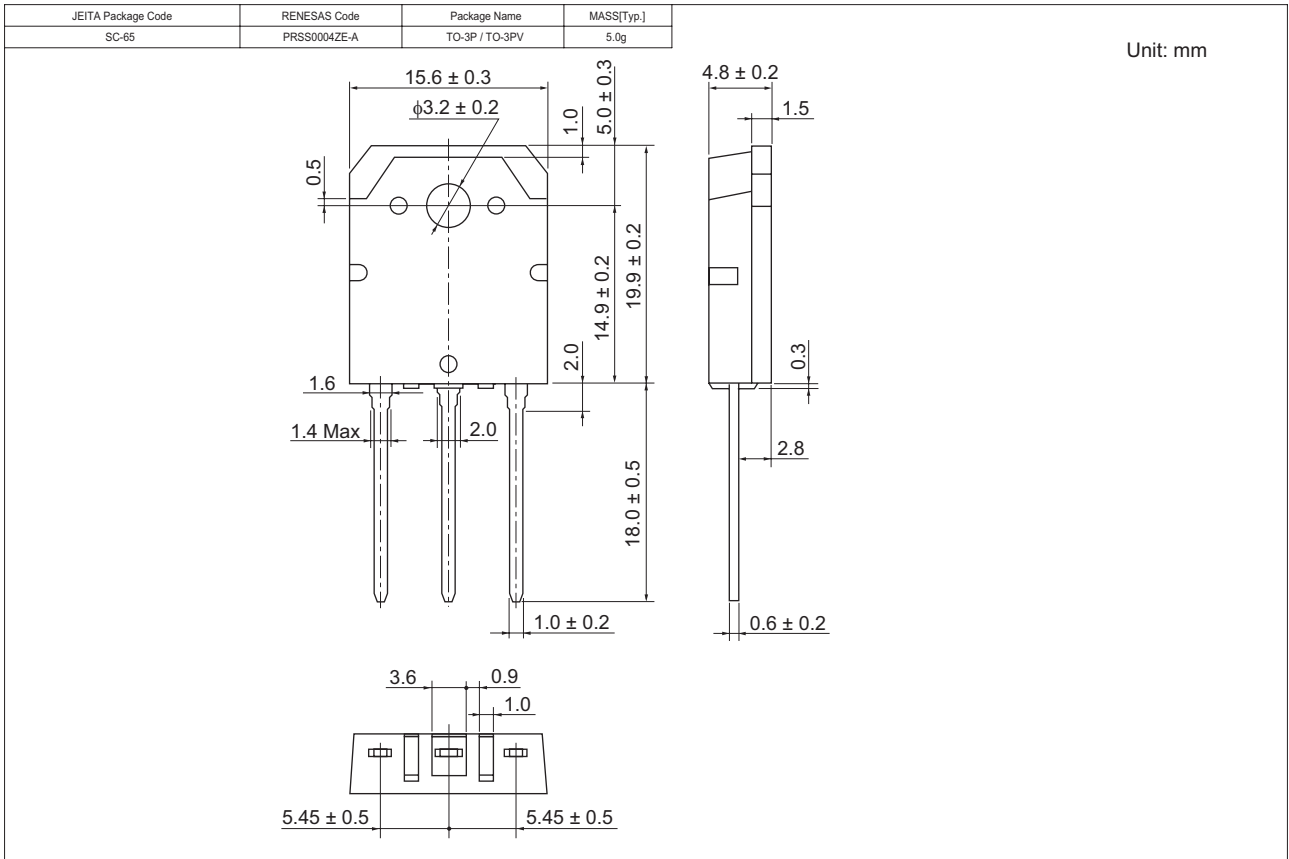
Avalanche Test Circuit and Waveform







### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SK2554-E	30 pcs	Plastic magazine

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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