2SK1155, 2SK1156

Silicon N Channel MOS FET

REJ03G0909-0200
(Previous: ADE-208-1247)
Rev.2.00
Sep 07, 2005

Application

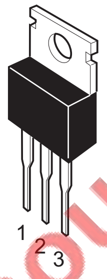
High speed power switching

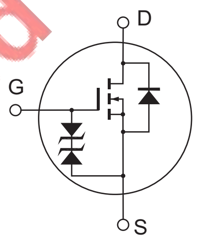
Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

Outline

RENESAS Package code: PRSS0004AC-A
(Package name: TO-220AB)





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

Absolute Maximum Ratings

(Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1155	V_{DSS}	450	V
	2SK1156		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	5	A
Drain peak current		$I_{D(pulse)}$*[1]	20	A
Body to drain diode reverse drain current		I_{DR}	5	A
Channel dissipation		Pch*[2]	50	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%

2. Value at T_C = 25°C

Electrical Characteristics

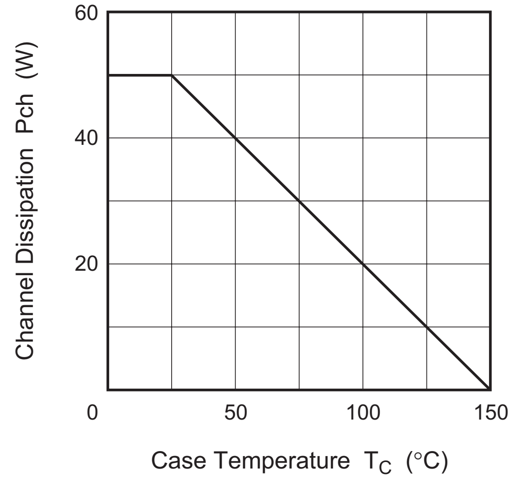
(Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1155	$V_{(BR)DSS}$	450	—	—	V	I_D = 10 mA, V_{GS} = 0
	2SK1156		500				
Gate to source breakdown voltage		$V_{(BR)GSS}$	±30	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current		I_{GSS}	—	—	±10	µA	V_{GS} = ±25 V, V_{DS} = 0
Zero gate voltage drain current	2SK1155	I_{DSS}	—	—	250	µA	V_{DS} = 360 V, V_{GS} = 0
	2SK1156						V_{DS} = 400 V, V_{GS} = 0
Gate to source cutoff voltage		$V_{GS(off)}$	2.0	—	3.0	V	I_D = 1 mA, V_{DS} = 10 V
Static drain to source on state resistance	2SK1155	$R_{DS(on)}$	—	1.0	1.4	Ω	I_D = 2.5 A, V_{GS} = 10 V *[3]
	2SK1156		—	1.2	1.5		
Forward transfer admittance		$\|y_{fs}\|$	2.5	4.0	—	S	I_D = 2.5 A, V_{DS} = 10 V *[3]
Input capacitance		Ciss	—	640	—	pF	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz
Output capacitance		Coss	—	160	—	pF	
Reverse transfer capacitance		Crss	—	20	—	pF	
Turn-on delay time		$t_{d(on)}$	—	10	—	ns	I_D = 2.5 A, V_{GS} = 10 V, R_L = 12 Ω
Rise time		t_r	—	25	—	ns	
Turn-off delay time		$t_{d(off)}$	—	50	—	ns	
Fall time		t_f	—	30	—	ns	
Body to drain diode forward voltage		V_{DF}	—	0.95	—	V	I_F = 5 A, V_{GS} = 0
Body to drain diode reverse recovery time		t_{rr}	—	300	—	ns	I_F = 5 A, V_{GS} = 0, di_F/dt = 100 A/µs

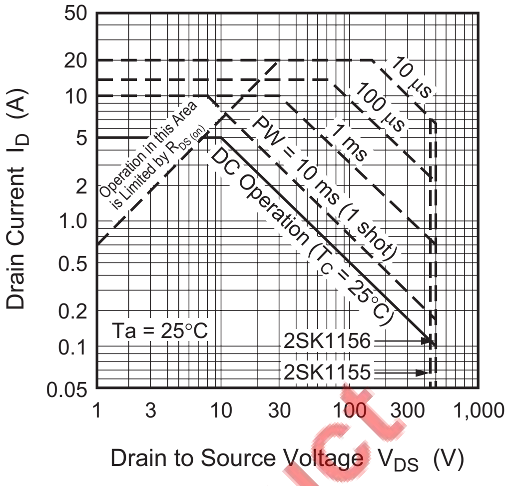
Note: 3. Pulse test

Main Characteristics

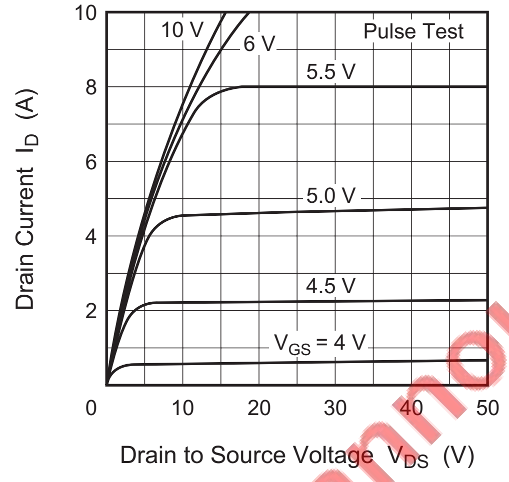
Power vs. Temperature Derating



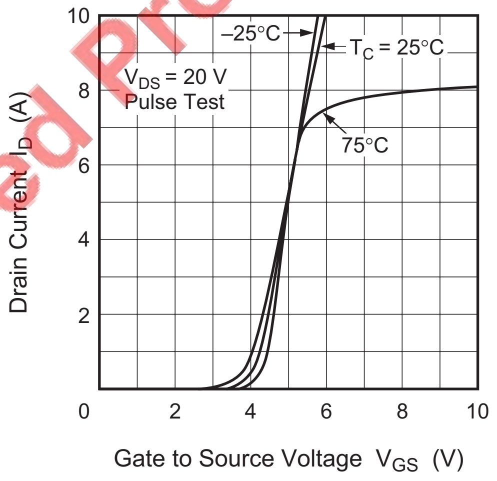
Maximum Safe Operation Area



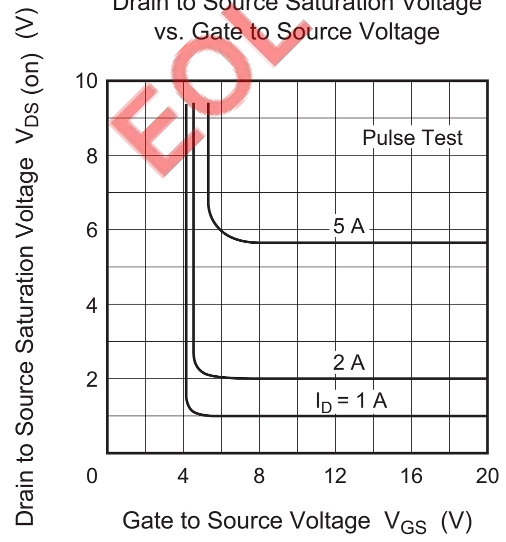
Typical Output Characteristics



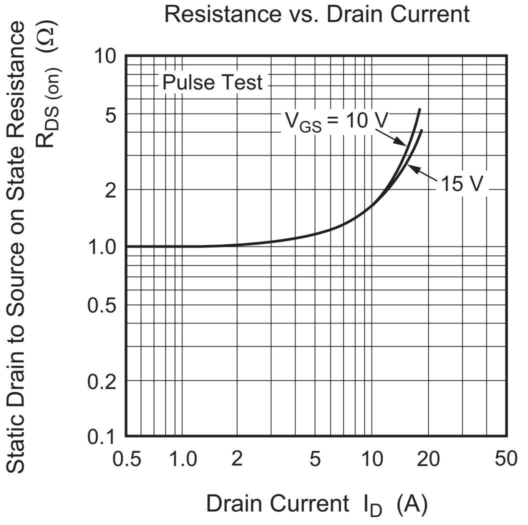
Typical Transfer Characteristics



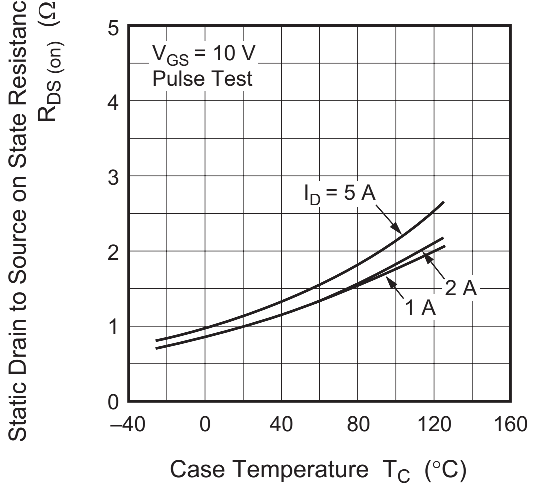
Drain to Source Saturation Voltage vs. Gate to Source Voltage



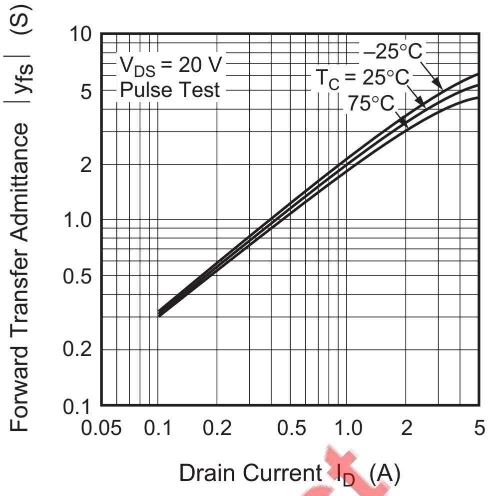
Static Drain to Source on State Resistance vs. Drain Current



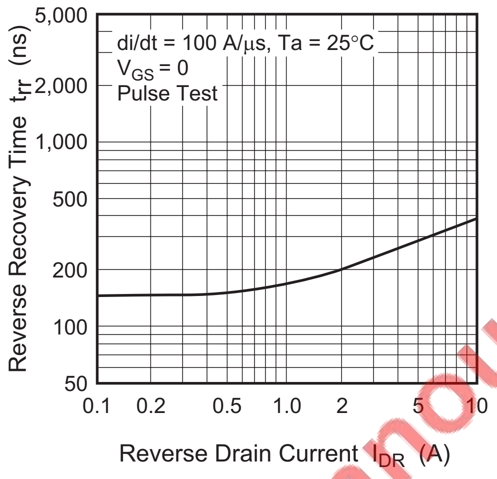
Static Drain to Source on State Resistance vs. Temperature



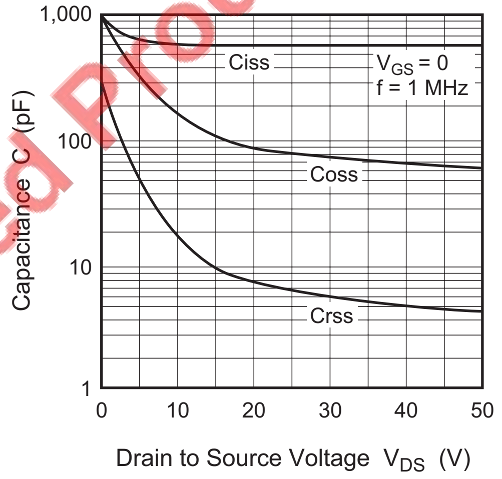
Forward Transfer Admittance vs. Drain Current



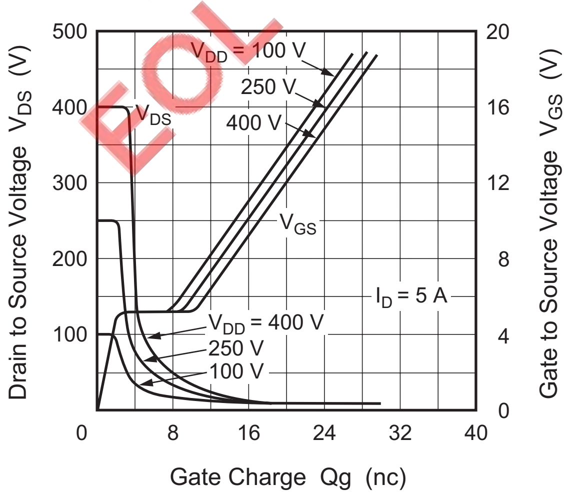
Body to Drain Diode Reverse Recovery Time



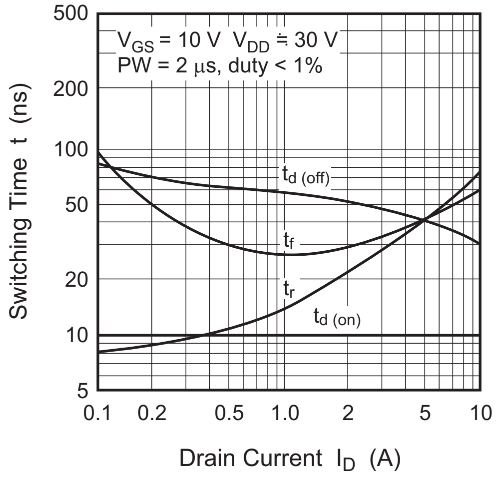
Typical Capacitance vs. Drain to Source Voltage



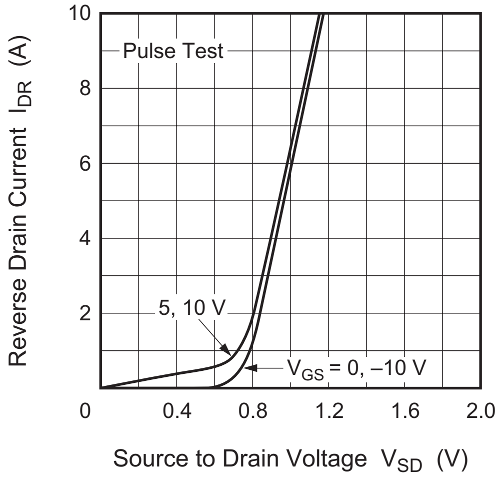
Dynamic Input Characteristics



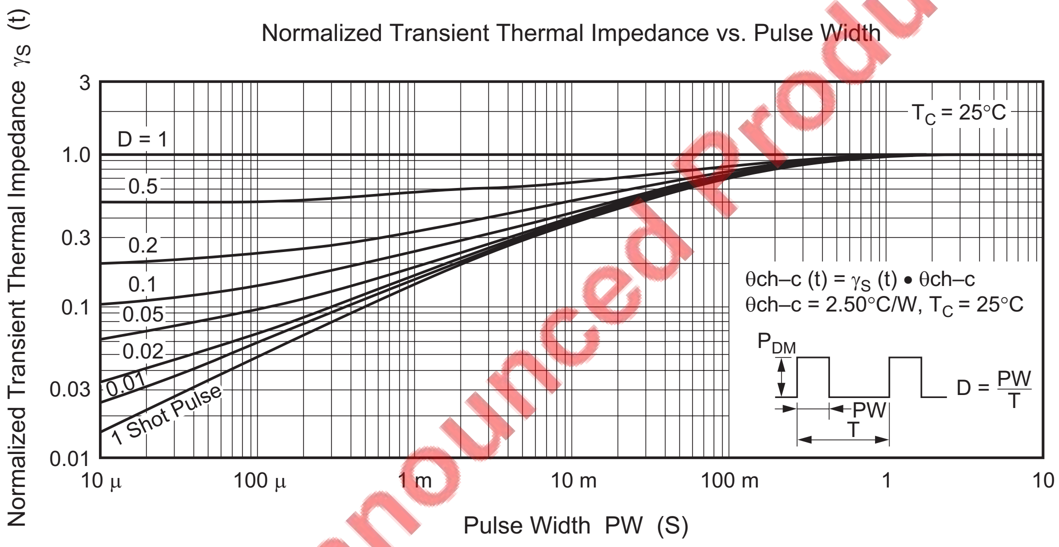
Switching Characteristics



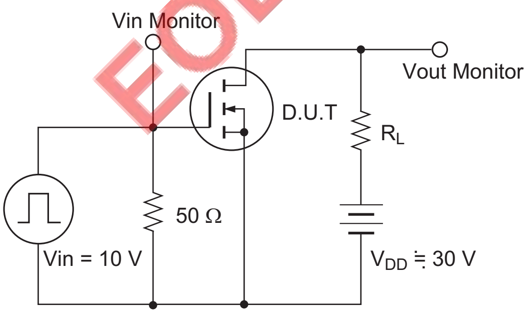
Reverse Drain Current vs.
Source to Drain Voltage



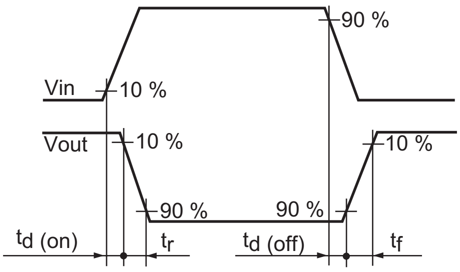
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



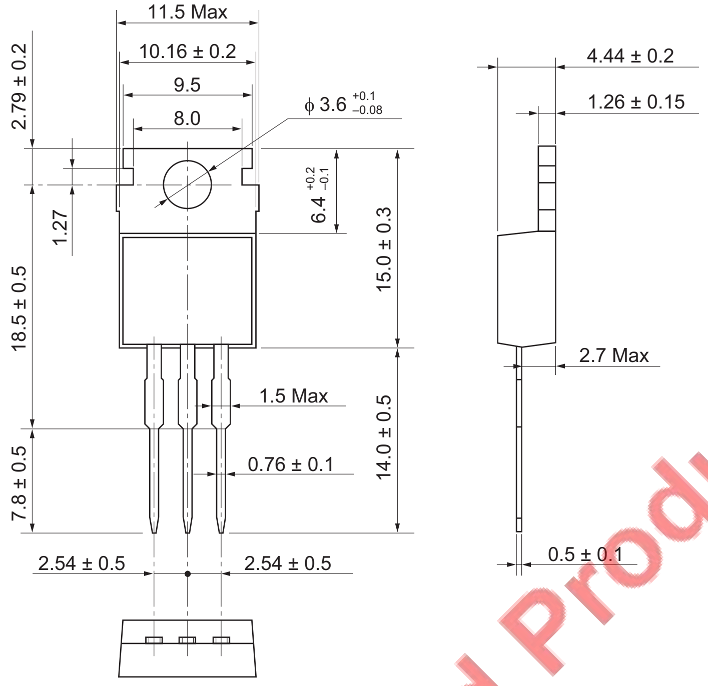
Waveforms



Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-46	PRSS0004AC-A	TO-220AB / TO-220ABV	1.8g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
2SK1155-E	500 pcs	Box (Sack)
2SK1156-E	500 pcs	Box (Sack)

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