2SK2958(L), 2SK2958(S)

Silicon N Channel MOS FET
High Speed Power Switching

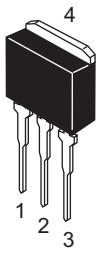
REJ03G1058-0400
(Previous: ADE-208-568B)
Rev.4.00
Sep 07, 2005

Features

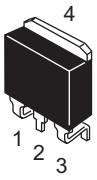
- Low on-resistance
  $R_{DS(on)}$ = 5.5 mΩ typ.
- 4 V gate drive devices.
- High speed switching

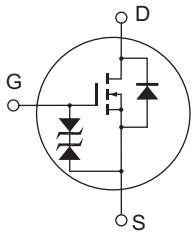
Outline

RENESAS Package code: PRSS0004AE-A
(Package name: LDPAK(L))



RENESAS Package code: PRSS0004AE-B
(Package name: LDPAK(S)-(1))





1. Gate
2. Drain
3. Source
4. Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	75	A
Drain peak current	$I_{D(pulse)}$ Note1	300	A
Body-drain diode reverse drain current	I_{DR}	75	A
Channel dissipation	Pch Note2	100	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1 %
2. Value at Tc = 25°C

Electrical Characteristics

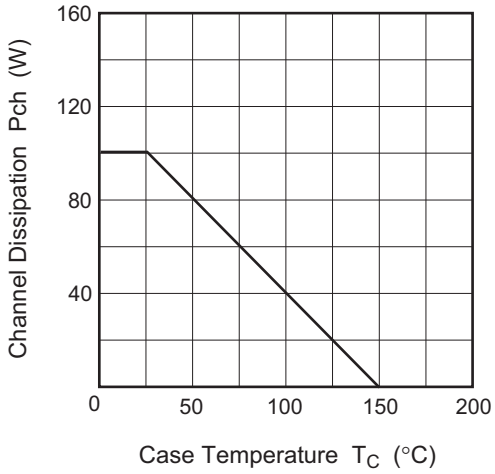
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	10	µA	V_{DS} = 30 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±1 6V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	I_D = 1 mA, V_{DS} = 10V
Static drain to source on state resistance	$R_{DS(on)}$	—	5.5	7.0	mΩ	I_D = 40 A, V_{GS} = 10V Note3
	$R_{DS(on)}$	—	9.0	14.0	mΩ	I_D = 40 A, V_{GS} = 4V Note3
Forward transfer admittance	$\|y_{fs}\|$	35	60	—	S	I_D = 40 A, V_{DS} = 10V Note3
Input capacitance	Ciss	—	4100	—	pF	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz
Output capacitance	Coss	—	2700	—	pF	
Reverse transfer capacitance	Crss	—	800	—	pF	
Turn-on delay time	$t_{d(on)}$	—	45	—	ns	V_{GS} = 10 V, I_D = 40 A, R_L = 0.25 Ω
Rise time	t_r	—	430	—	ns	
Turn-off delay time	$t_{d(off)}$	—	460	—	ns	
Fall time	t_f	—	440	—	ns	
Body–drain diode forward voltage	V_{DF}	—	1.0	—	V	I_F = 75A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	90	—	ns	I_F = 75A, V_{GS} = 0 di_F/dt = 50 A/µs

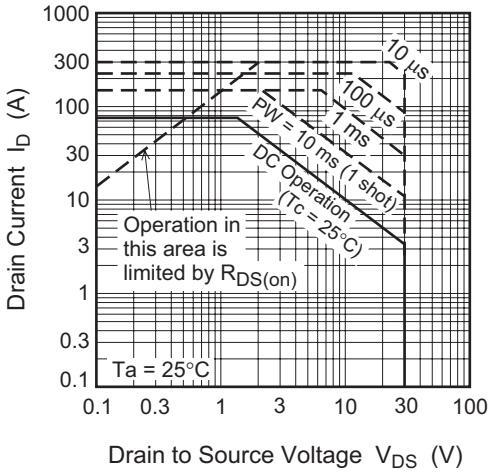
Note: 3. Pulse test

Main Characteristics

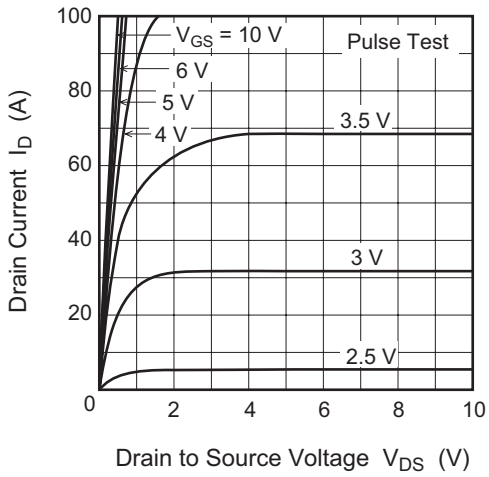
Power vs. Temperature Derating



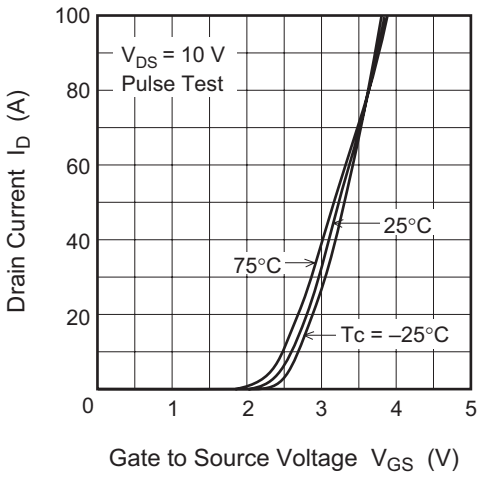
Maximum Safe Operation Area



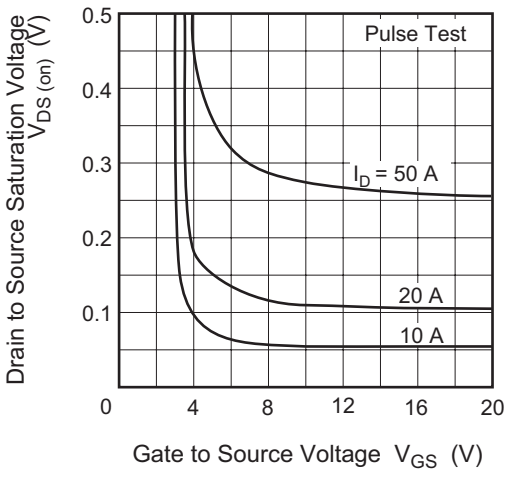
Typical Output Characteristics



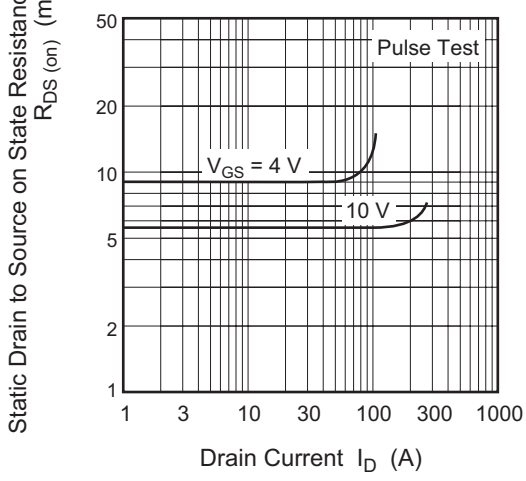
Typical Transfer Characteristics



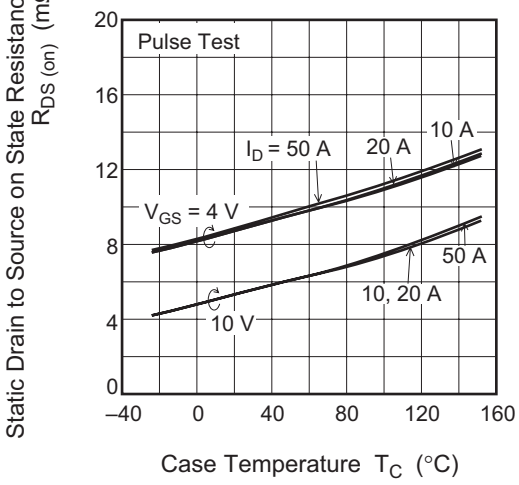
Drain to Source Saturation Voltage
vs. Gate to Source Voltage



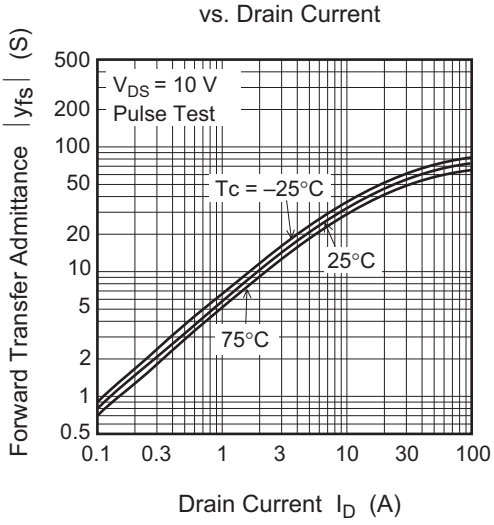
Static Drain to Source on State
Resistance vs. Drain Current



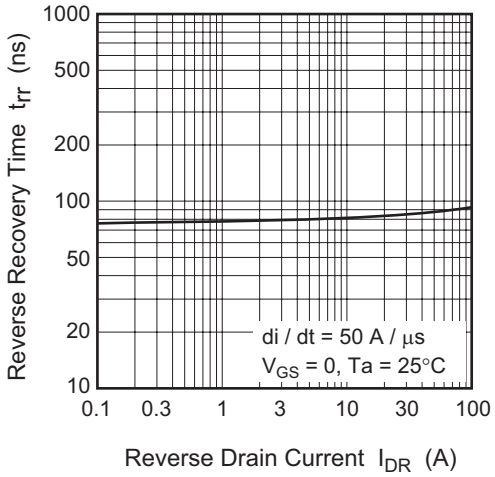
Static Drain to Source on State Resistance vs. Temperature



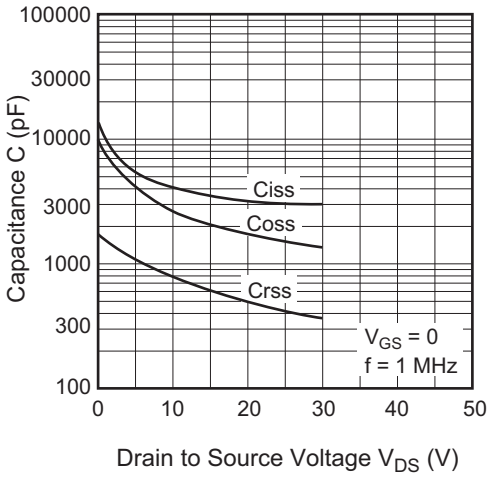
Forward Transfer Admittance vs. Drain Current



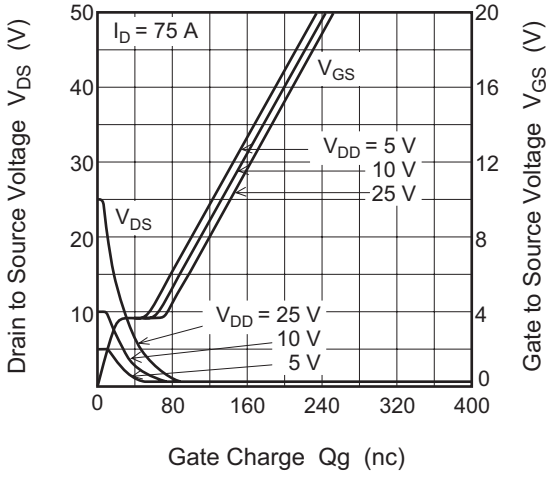
Body to Drain Diode Reverse Recovery Time



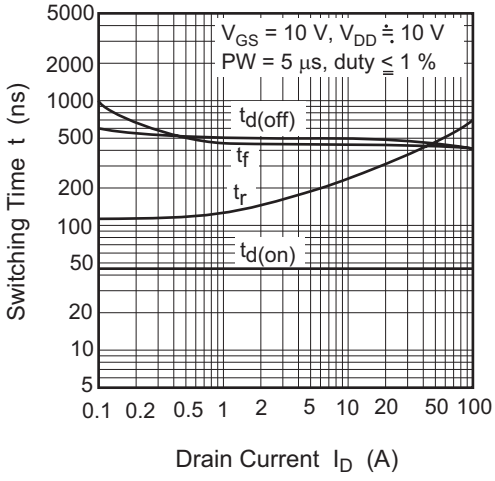
Typical Capacitance vs. Drain to Source Voltage



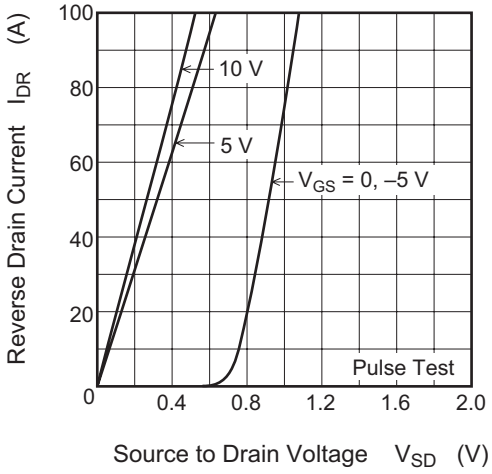
Dynamic Input Characteristics



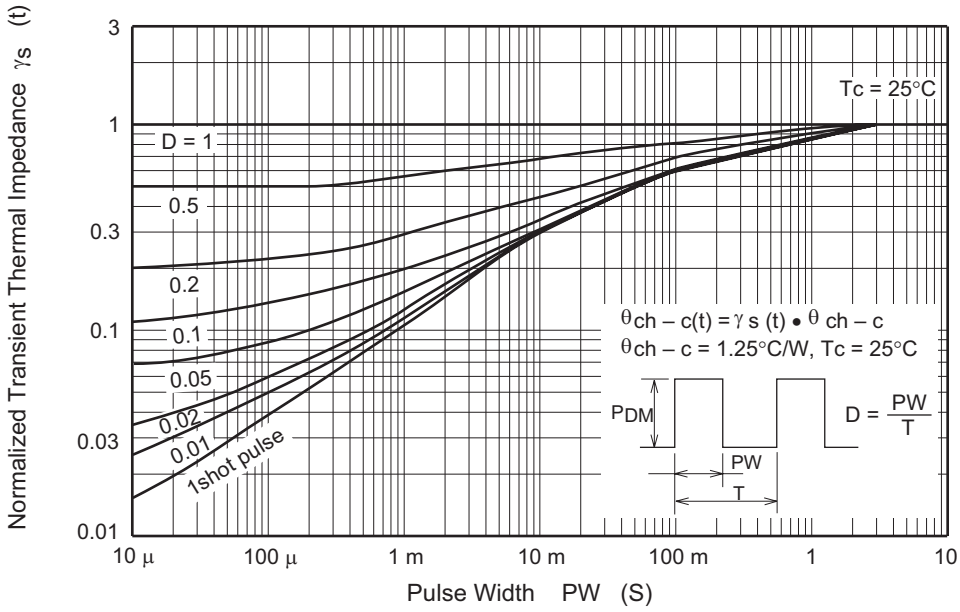
Switching Characteristics



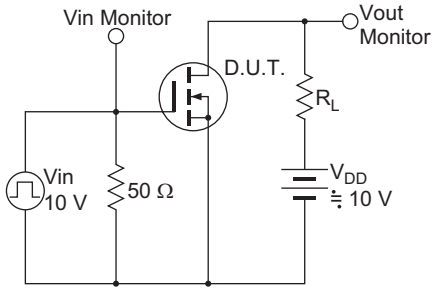
Reverse Drain Current vs.
Source to Drain Voltage



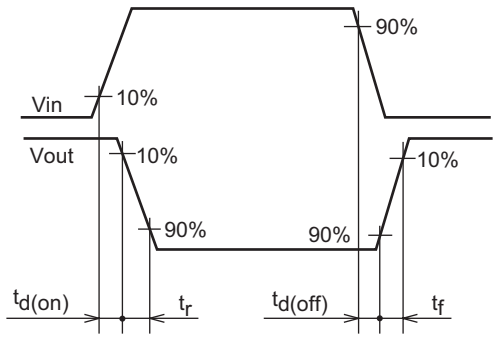
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



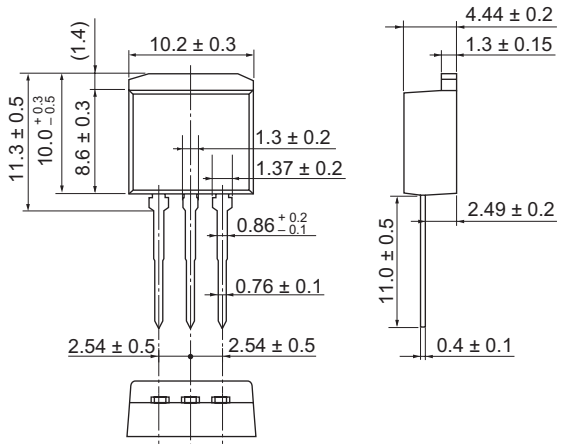
Waveform



Package Dimensions

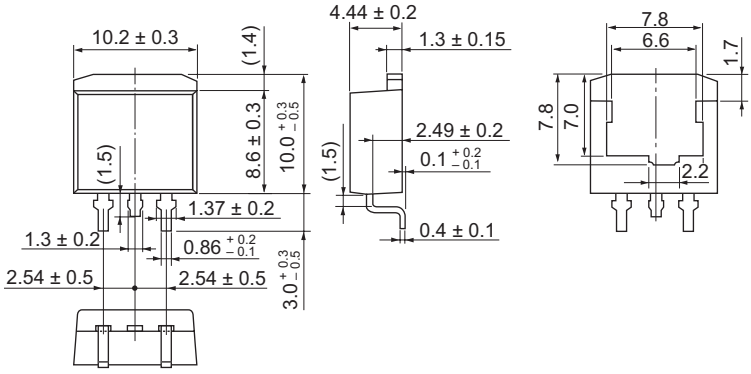
JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
—	PRSS0004AE-A	LDPAK(L) / LDPAK(L)V	1.40g

Unit: mm



JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-83	PRSS0004AE-B	LDPAK(S)-(1) / LDPAK(S)-(1)V	1.30g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
2SK2958L-E	500 pcs	Box (Sack)
2SK2958STL-E	1000 pcs	Taping

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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