

2SK2958(L),2SK2958(S)

Silicon N Channel MOS FET
High Speed Power Switching

HITACHI

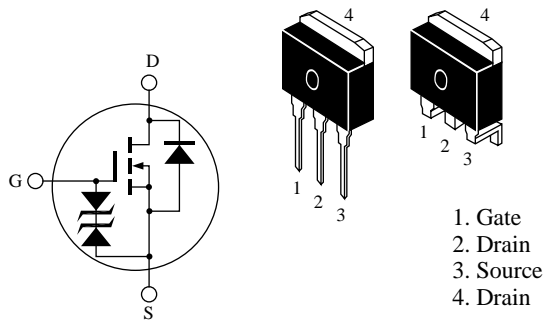
ADE-208-568B (Z)
3rd. Edition
Jun 1998

Features

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

Outline

LDBPAK



2SK2958(L),2SK2958(S)

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 |

Note: 1. $PW \leq 10\mu s$, duty cycle $\leq 1\%$

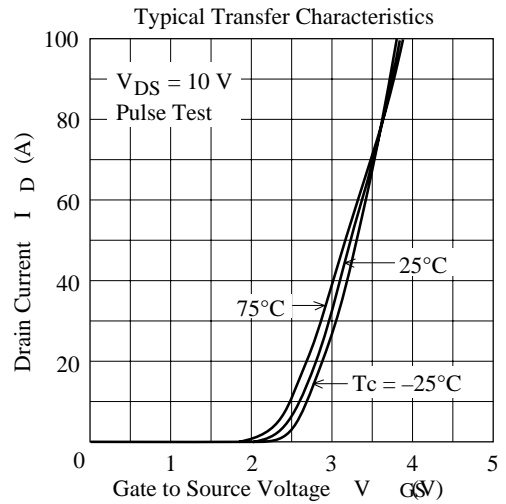
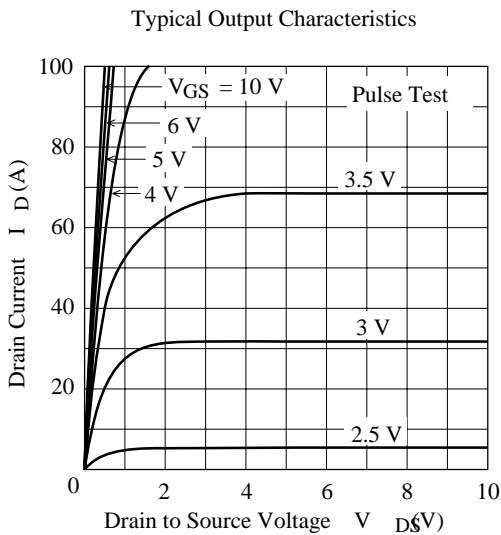
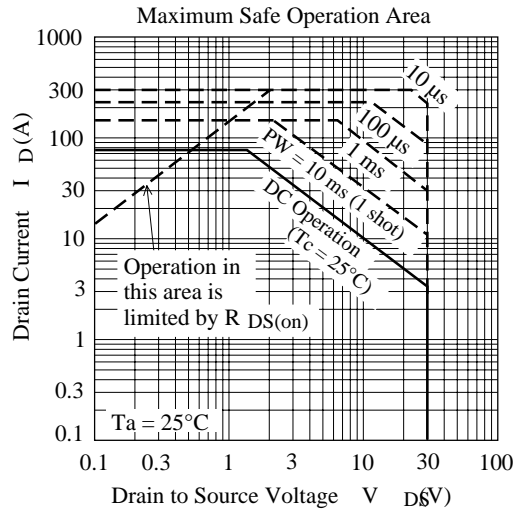
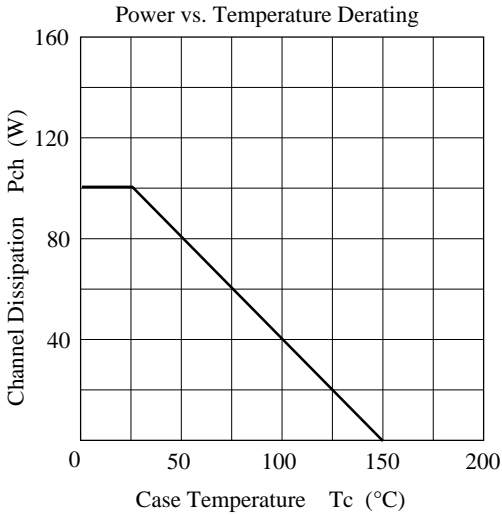
2. Value at $T_c = 25^\circ C$

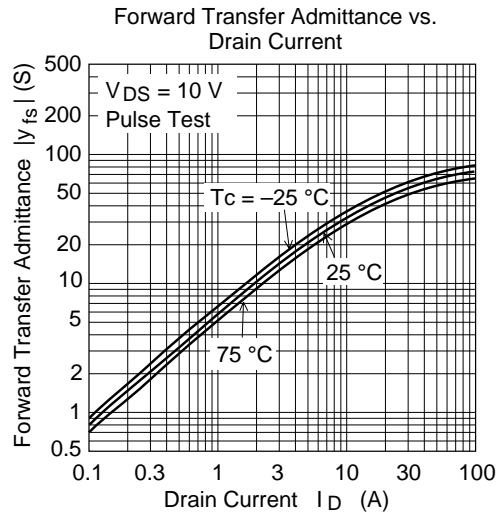
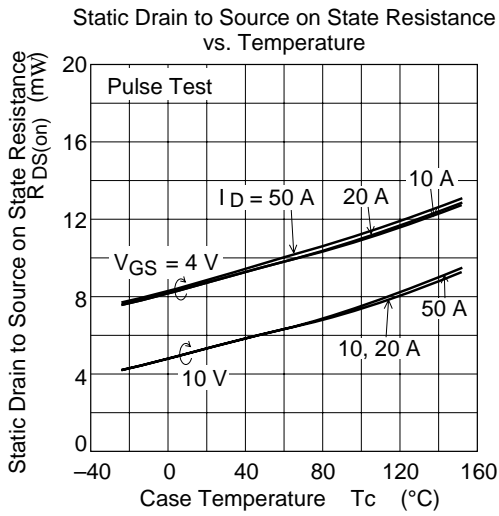
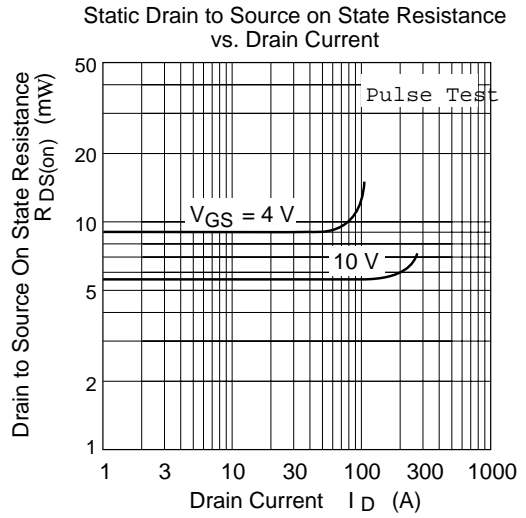
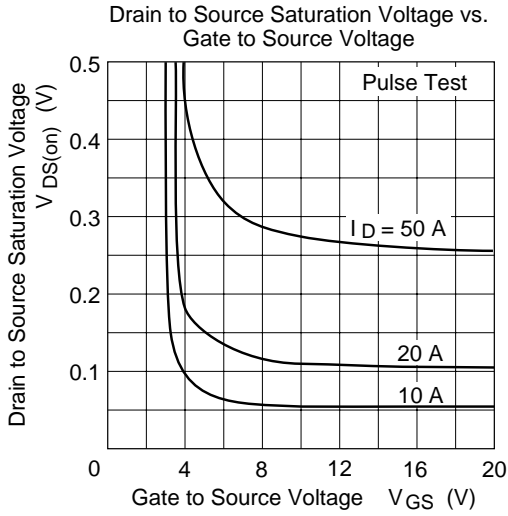
Electrical Characteristics (Ta = 25°C)

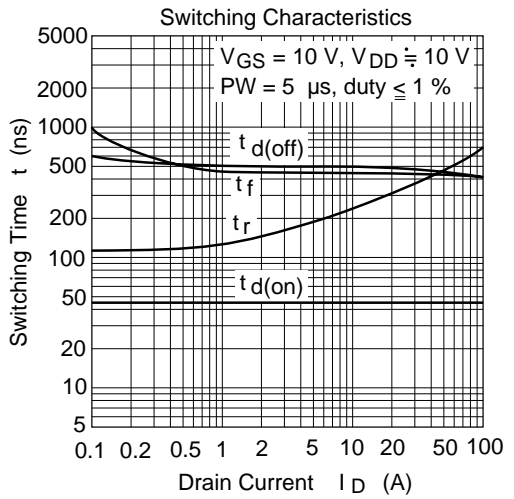
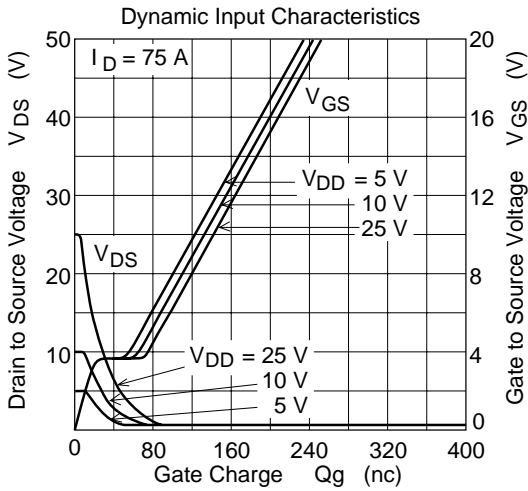
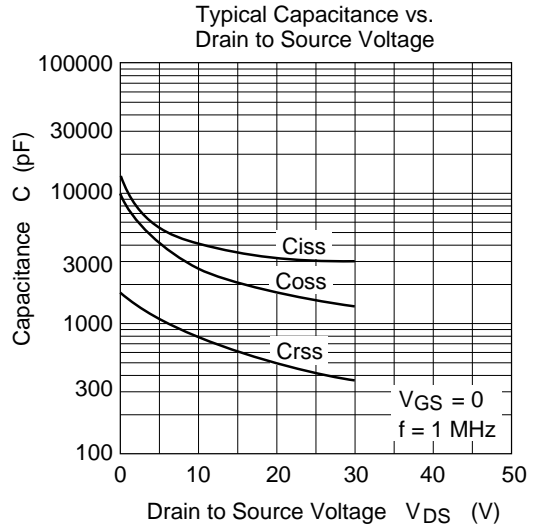
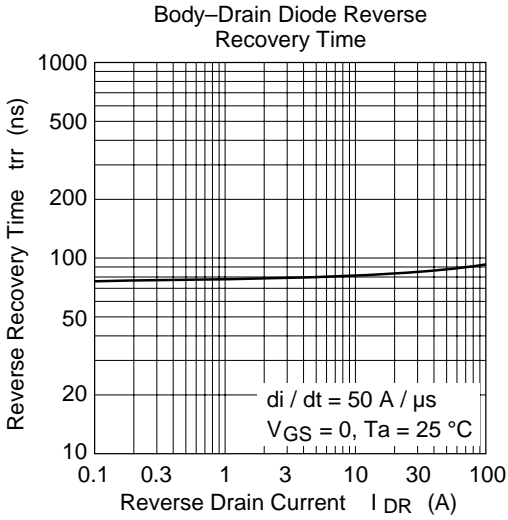
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|--|---------------|-----|------|------|------|---|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 30 | — | — | V | $I_D = 10mA, V_{GS} = 0$ |
| Gate to source breakdown voltage | $V_{(BR)GSS}$ | ±20 | — | — | V | $I_G = \pm 100\mu A, V_{DS} = 0$ |
| Zero gate voltage drain current | I_{DSS} | — | — | 10 | μA | $V_{DS} = 30V, V_{GS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ±10 | μA | $V_{GS} = \pm 16V, V_{DS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 1.0 | — | 2.0 | V | $I_D = 1mA, V_{DS} = 10V$ |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 5.5 | 7.0 | mΩ | $I_D = 40A, V_{GS} = 10V$ ^{Note3} |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 9.0 | 14.0 | mΩ | $I_D = 40A, V_{GS} = 4V$ ^{Note3} |
| Forward transfer admittance | $ y_{fs} $ | 35 | 60 | — | S | $I_D = 40A, V_{DS} = 10V$ ^{Note3} |
| Input capacitance | Ciss | — | 4100 | — | pF | $V_{DS} = 10V$ |
| Output capacitance | Coss | — | 2700 | — | pF | $V_{GS} = 0$ |
| Reverse transfer capacitance | Crss | — | 800 | — | pF | $f = 1MHz$ |
| Turn-on delay time | $t_{d(on)}$ | — | 45 | — | ns | $V_{GS} = 10V, I_D = 40A$ |
| Rise time | t_r | — | 430 | — | ns | $R_L = 0.25\Omega$ |
| 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 | $I_F = 75A, V_{GS} = 0$ $diF/dt = 50A/\mu s$ |

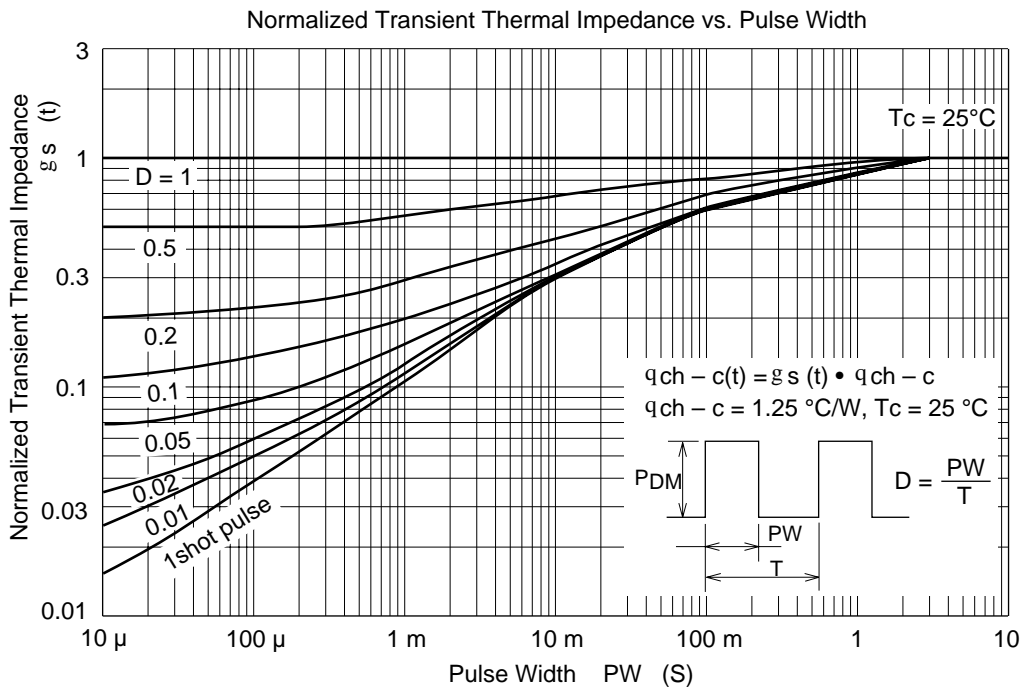
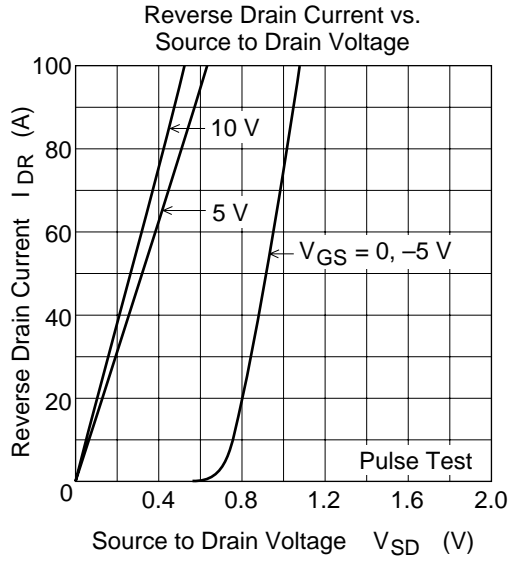
Note: 3. Pulse test

Main Characteristics

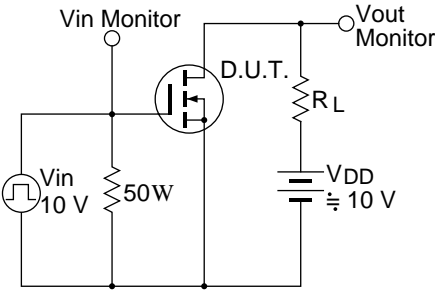




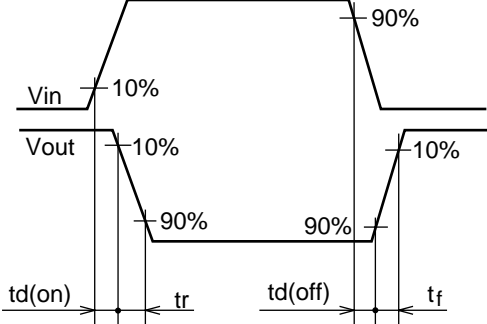




Switching Time Test Circuit



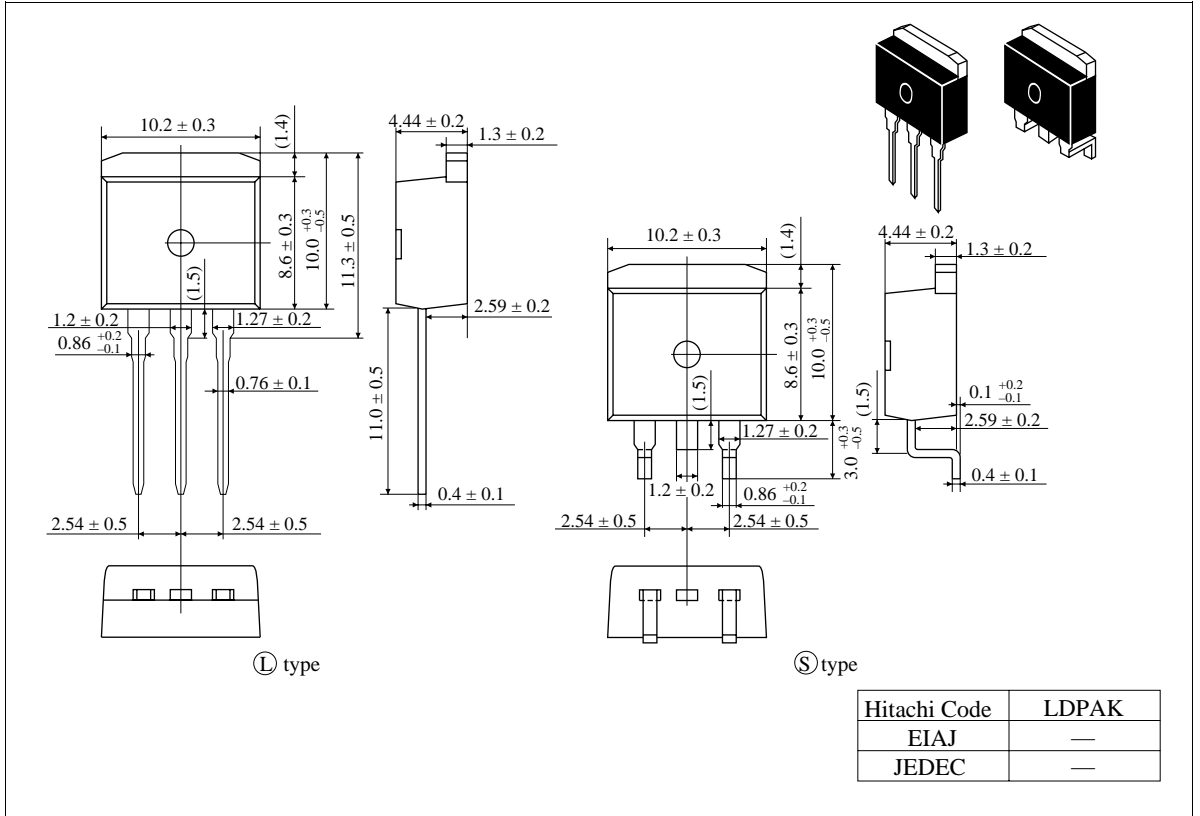
Waveform



2SK2958(L),2SK2958(S)

Package Dimensions

Unit: mm



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