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# 2SJ556

Silicon P Channel MOS FET  
High Speed Power Switching

## HITACHI

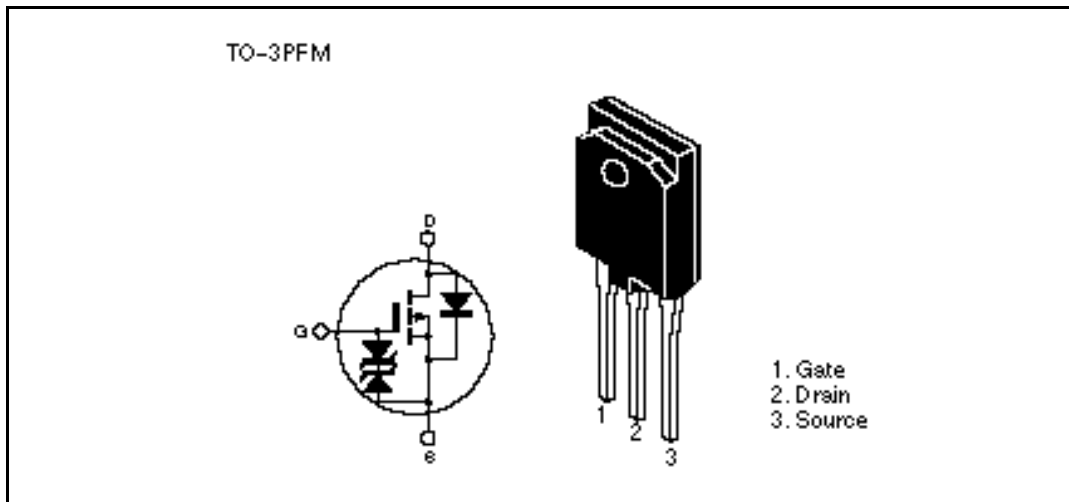
ADE-208-645A (Z)  
2nd. Edition  
Jun 1998

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### Features

- Low on-resistance  
 $R_{DS(on)} = 0.028$  typ.
- Low drive current.
- 4V gate drive devices.
- High speed switching.

### Outline



## 2SJ556

### Absolute Maximum Ratings (Ta = 25°C)

| Item                                   | Symbol                          | Ratings     | Unit |
|--|---------------------------------|-------------|------|
| Drain to source voltage                | $V_{DSS}$                       | -60         | V    |
| Gate to source voltage                 | $V_{GSS}$                       | ±20         | V    |
| Drain current                          | $I_D$                           | -45         | A    |
| Drain peak current                     | $I_{D(pulse)}$ <sup>Note1</sup> | -180        | A    |
| Body-drain diode reverse drain current | $I_{DR}$                        | -45         | A    |
| Avalanche current                      | $I_{AP}$ <sup>Note3</sup>       | -45         | A    |
| Avalanche energy                       | $E_{AR}$ <sup>Note3</sup>       | 173         | mJ   |
| Channel dissipation                    | $P_{ch}$ <sup>Note2</sup>       | 60          | W    |
| Channel temperature                    | Tch                             | 150         | °C   |
| Storage temperature                    | Tstg                            | -55 to +150 | °C   |

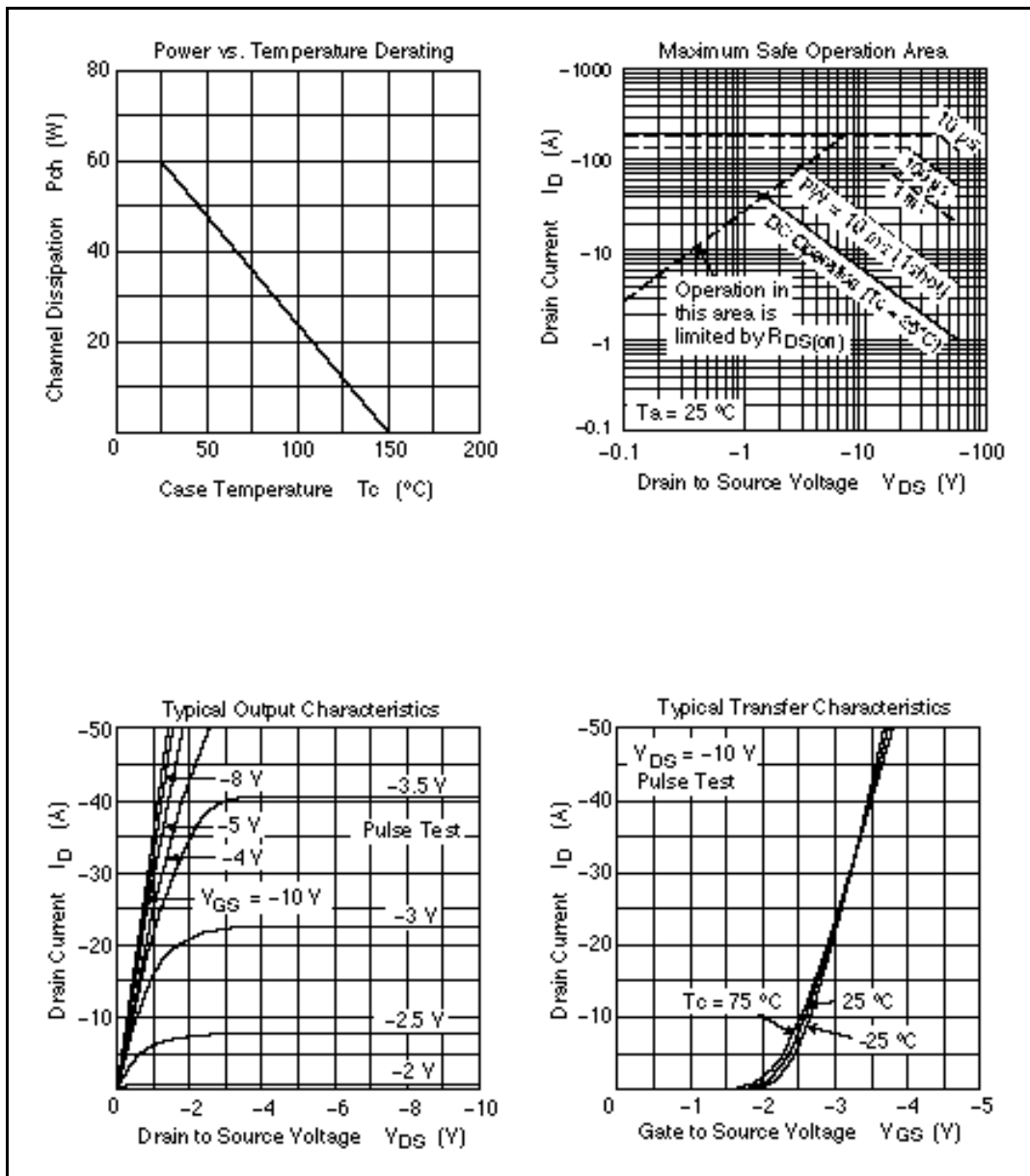
Note: 1. PW 10μs, duty cycle 1 %  
 2. Value at Tc = 25°C  
 3. Value at Tch = 25°C, Rg 50

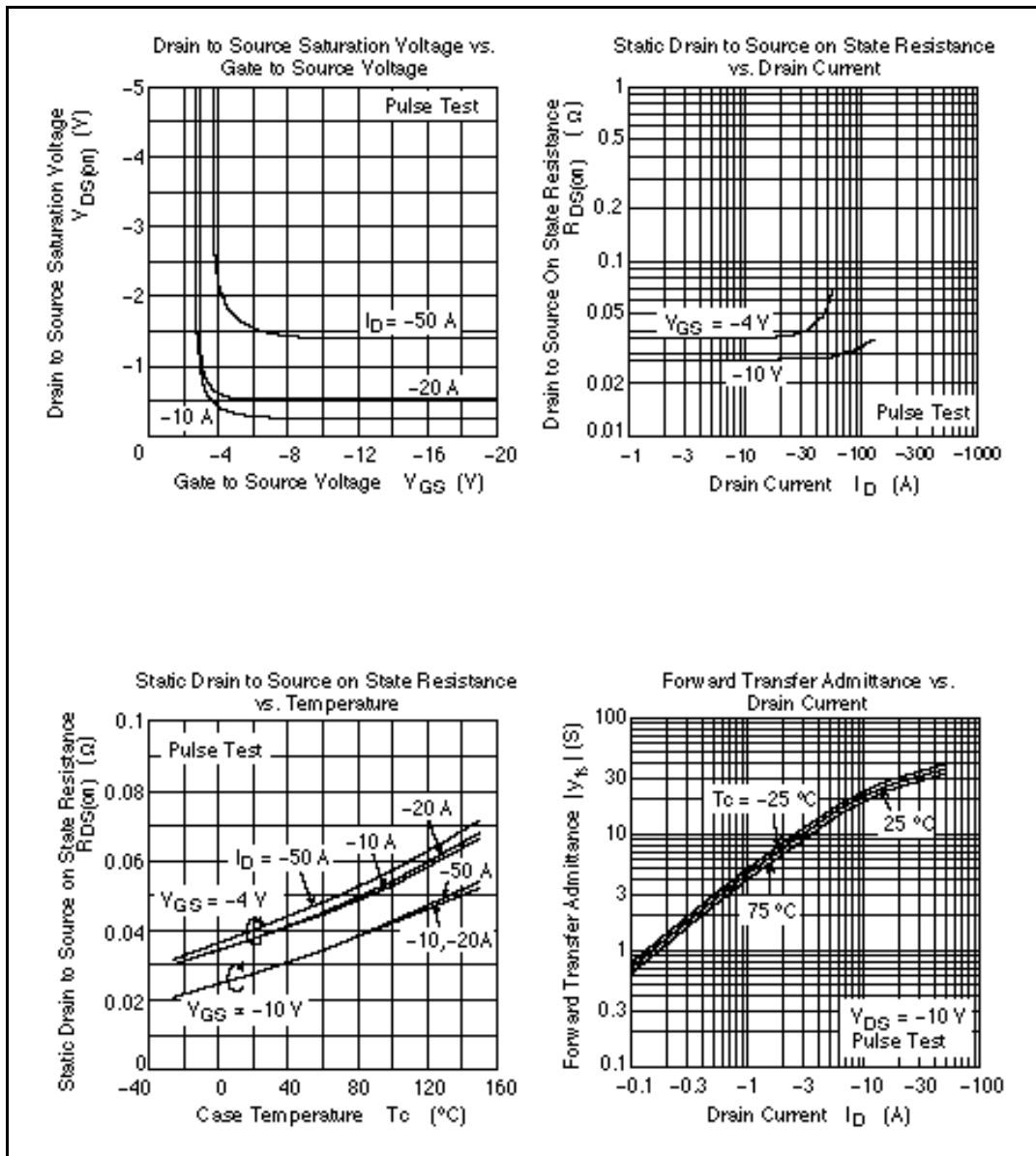
### Electrical Characteristics (Ta = 25°C)

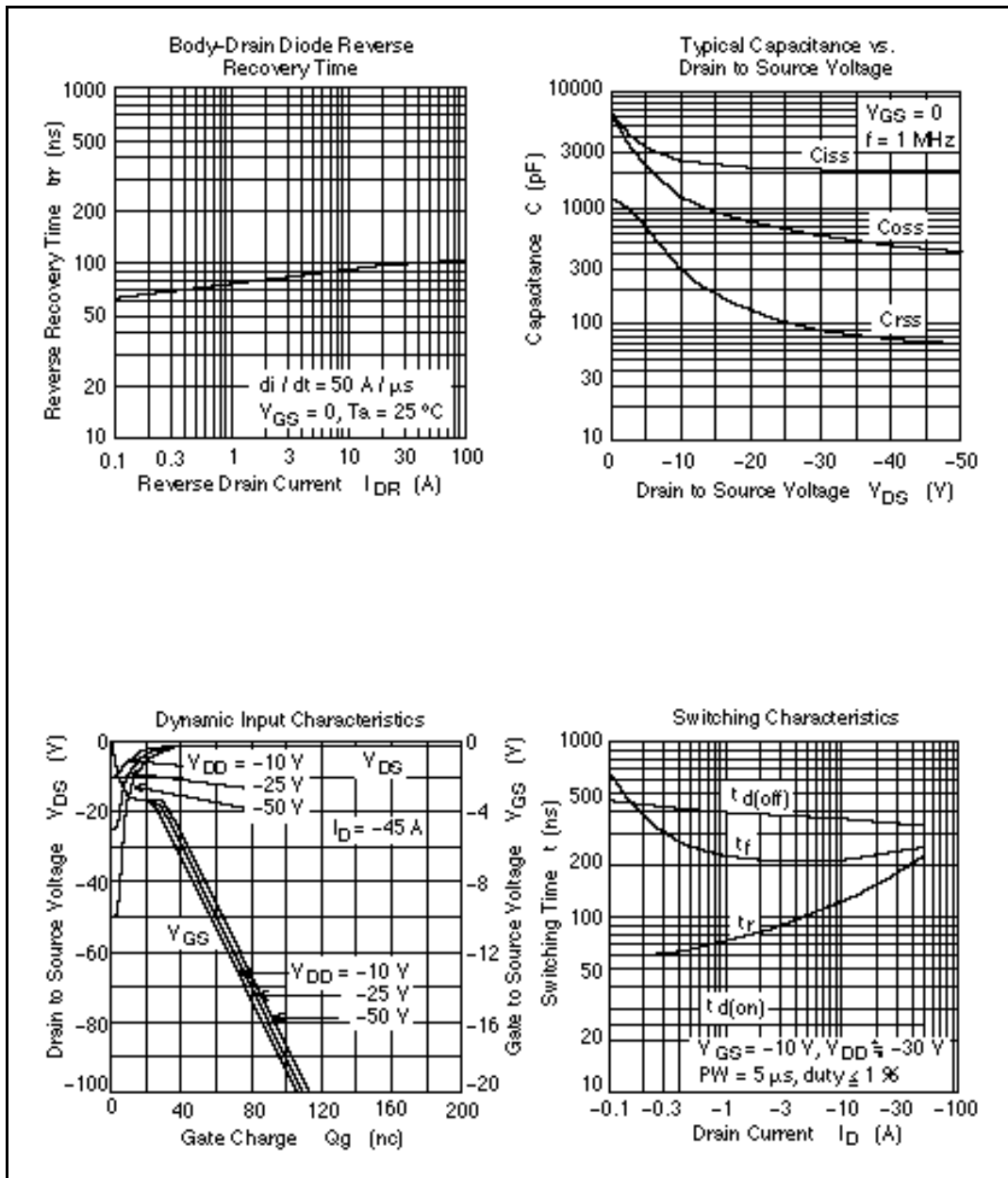
| Item                                       | Symbol        | Min  | Typ   | Max   | Unit | Test Conditions                              |
|--|---------------|------|-------|-------|------|--|
| Drain to source breakdown voltage          | $V_{(BR)DSS}$ | -60  | —     | —     | V    | $I_D = -10mA, V_{GS} = 0$                    |
| Gate to source breakdown voltage           | $V_{(BR)GSS}$ | ±20  | —     | —     | V    | $I_G = ±100μA, V_{DS} = 0$                   |
| Zero gate voltage drain current            | $I_{DSS}$     | —    | —     | -10   | μA   | $V_{DS} = -60V, V_{GS} = 0$                  |
| Gate to source leak current                | $I_{GSS}$     | —    | —     | ±10   | μA   | $V_{GS} = ±16V, V_{DS} = 0$                  |
| 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 | $R_{DS(on)}$  | —    | 0.028 | 0.037 |      | $I_D = -25A, V_{GS} = -10V$ <sup>Note4</sup> |
|  | $R_{DS(on)}$  | —    | 0.038 | 0.055 |      | $I_D = -25A, V_{GS} = -4V$ <sup>Note4</sup>  |
| Forward transfer admittance                | $ y_{fs} $    | 18   | 30    | —     | S    | $I_D = -25A, V_{DS} = -10V$ <sup>Note4</sup> |
| Input capacitance                          | Ciss          | —    | 2500  | —     | pF   | $V_{DS} = -10V$                              |
| Output capacitance                         | Coss          | —    | 1300  | —     | pF   | $V_{GS} = 0$                                 |
| Reverse transfer capacitance               | Crss          | —    | 300   | —     | pF   | f = 1MHz                                     |
| Turn-on delay time                         | $t_{d(on)}$   | —    | 25    | —     | ns   | $V_{GS} = -10V, I_D = -25A$                  |
| Rise time                                  | $t_r$         | —    | 160   | —     | ns   | $R_L = 1.2$                                  |
| Turn-off delay time                        | $t_{d(off)}$  | —    | 350   | —     | ns   |  |
| Fall time                                  | $t_f$         | —    | 240   | —     | ns   |  |
| Body-drain diode forward voltage           | $V_{DF}$      | —    | -1.1  | —     | V    | $I_F = -45A, V_{GS} = 0$                     |
| Body-drain diode reverse recovery time     | $t_{rr}$      | —    | 100   | —     | ns   | $I_F = -45A, V_{GS} = 0$<br>diF/ dt = 50A/μs |

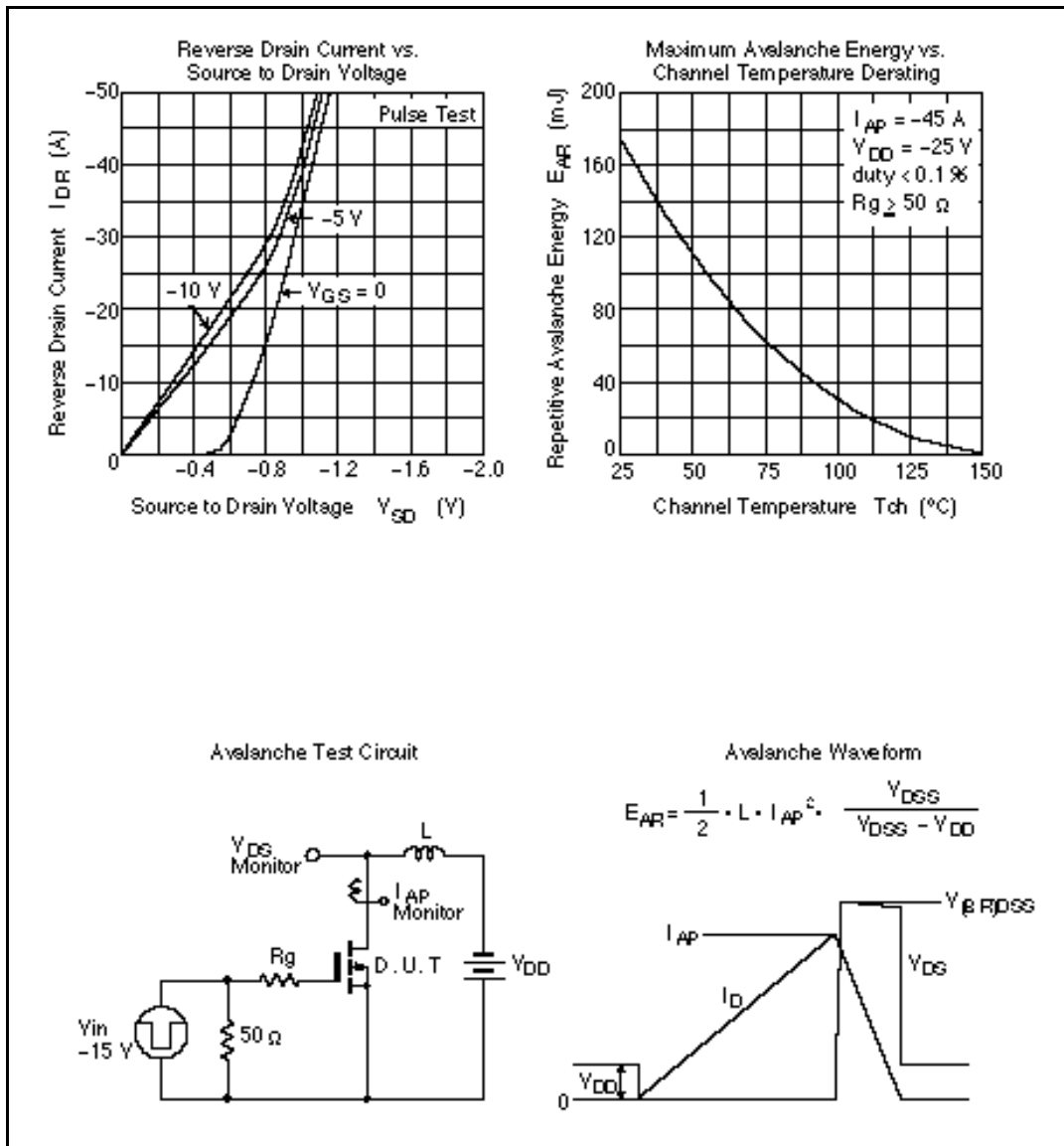
Note: 4. Pulse test

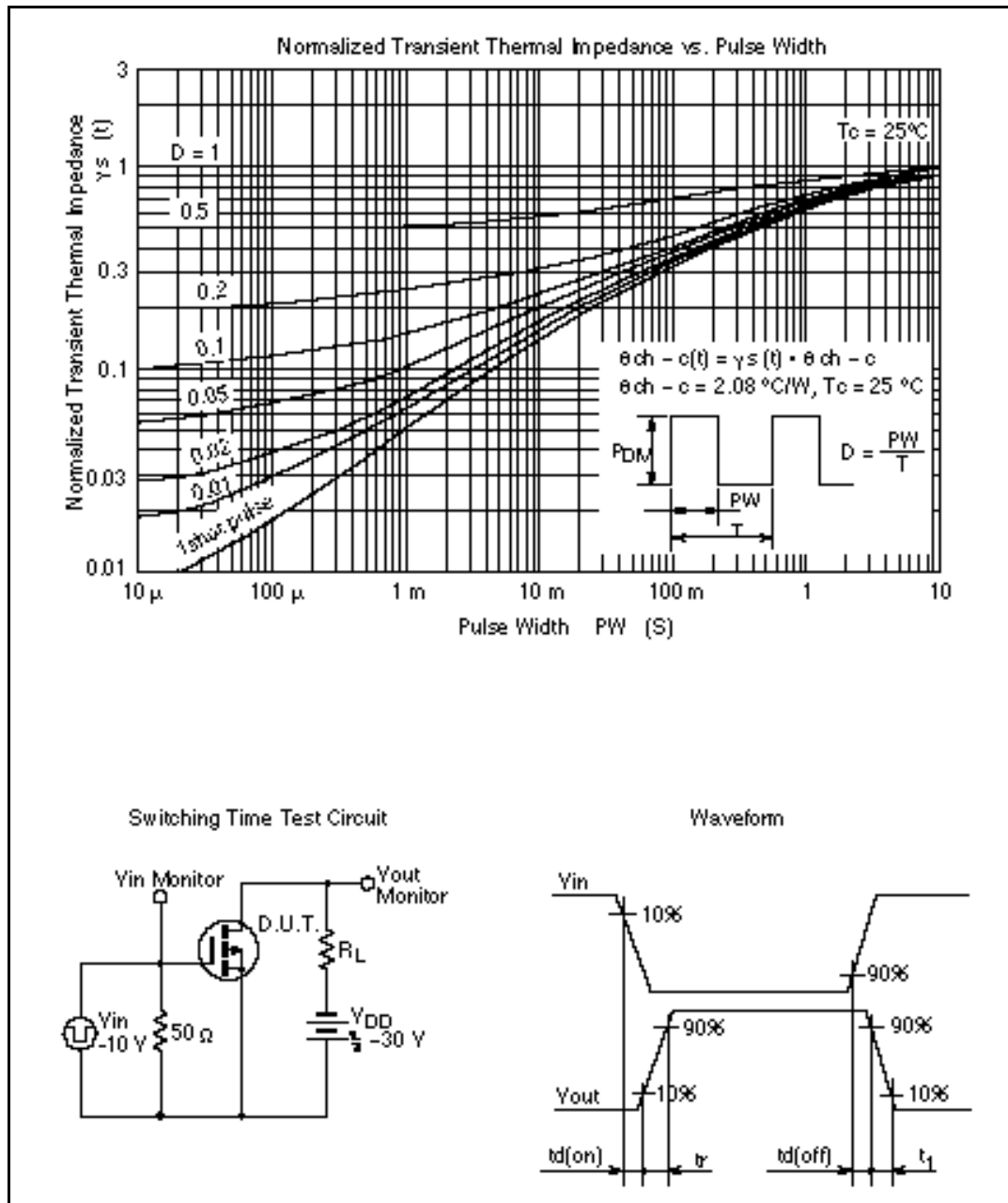
## Main Characteristics







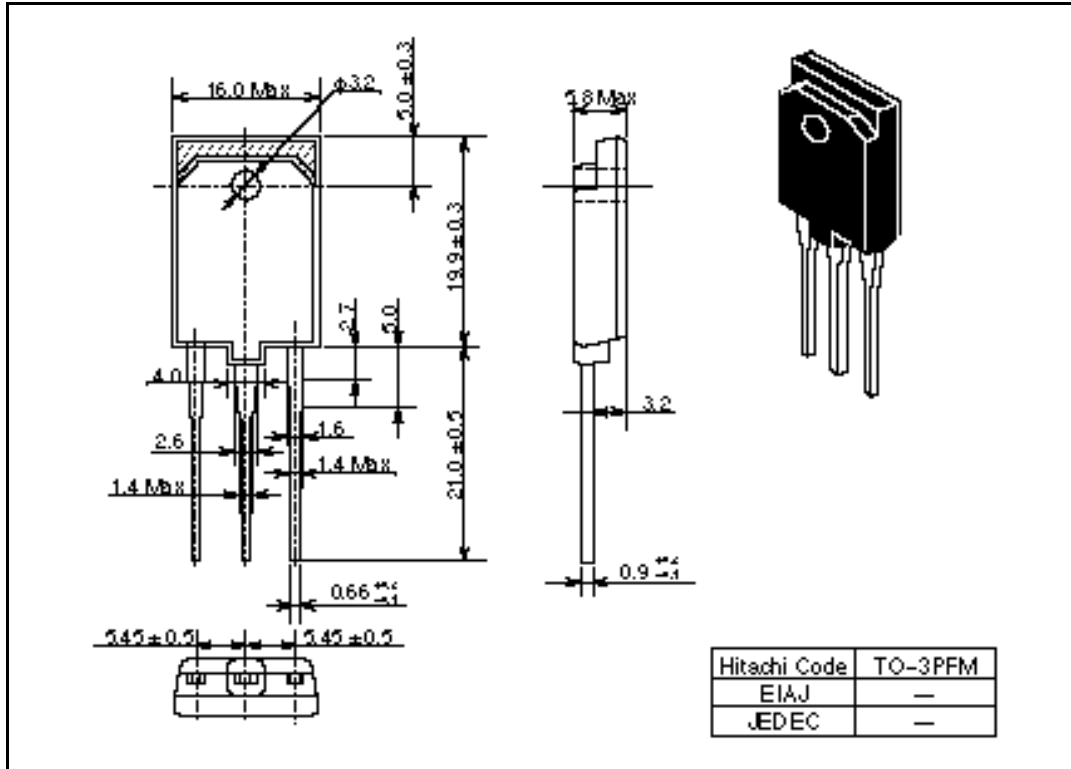




## 2SJ556

### Package Dimensions

Unit: mm





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