
2SK1335(L), 2SK1335(S)

Silicon N-Channel MOS FET

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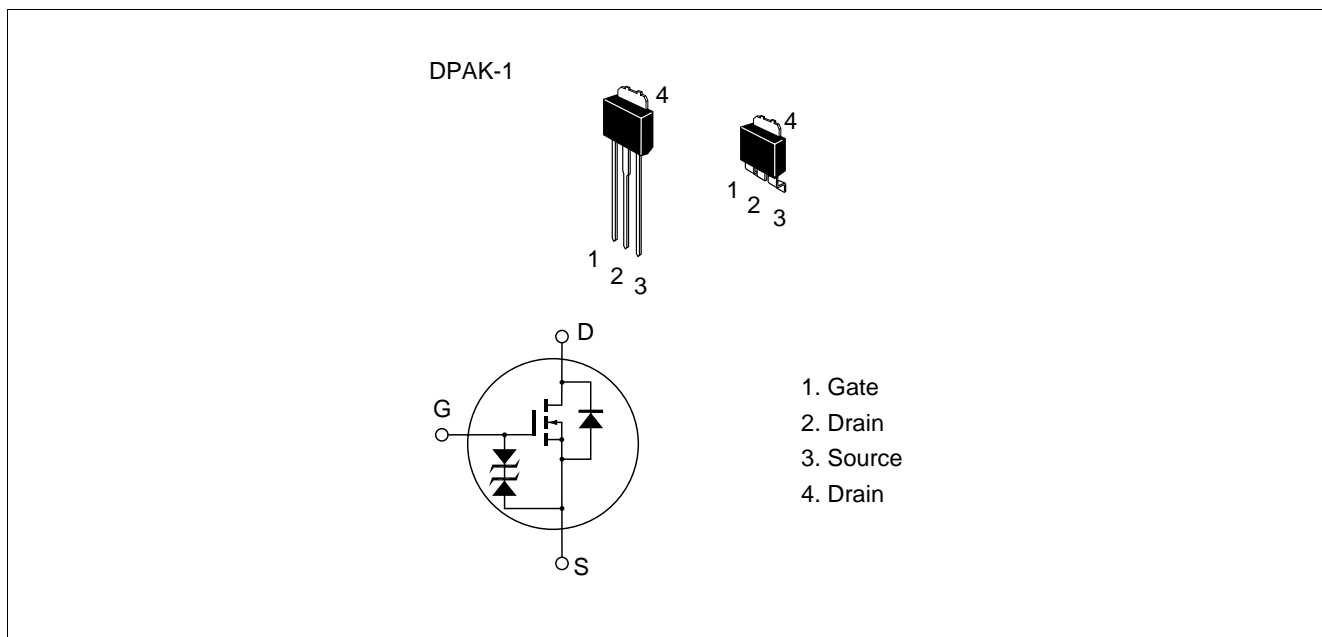
Application

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



2SK1335(L), 2SK1335(S)

Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|---------------------|-------------|------|
| Drain to source voltage | V_{DSS} | 200 | V |
| Gate to source voltage | V_{GSS} | ±20 | V |
| Drain current | I_D | 3 | A |
| Drain peak current | $I_{D(pulse)}^{*1}$ | 12 | A |
| Body to drain diode reverse drain current | I_{DR} | 3 | A |
| Channel dissipation | Pch^{*2} | 20 | W |
| Channel temperature | Tch | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

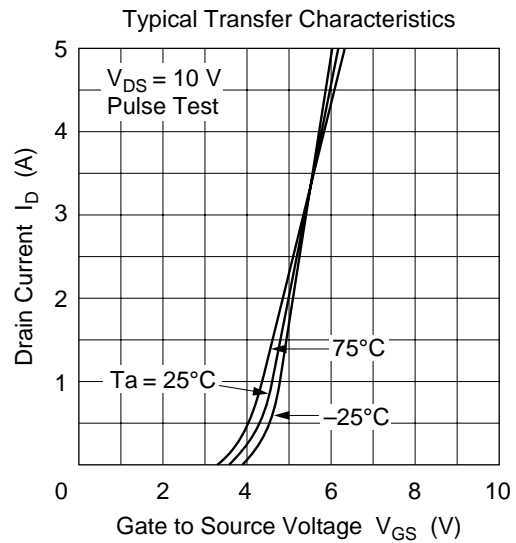
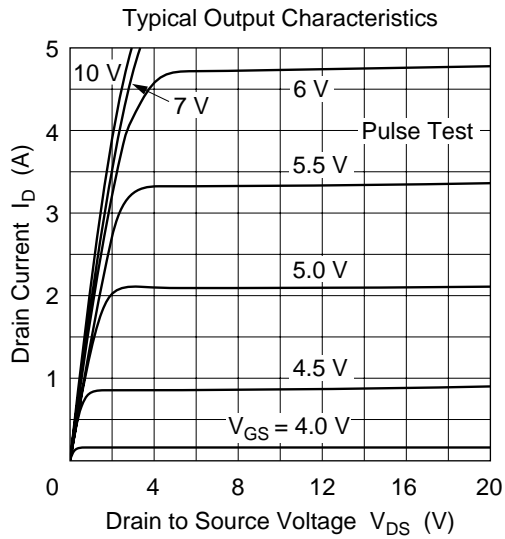
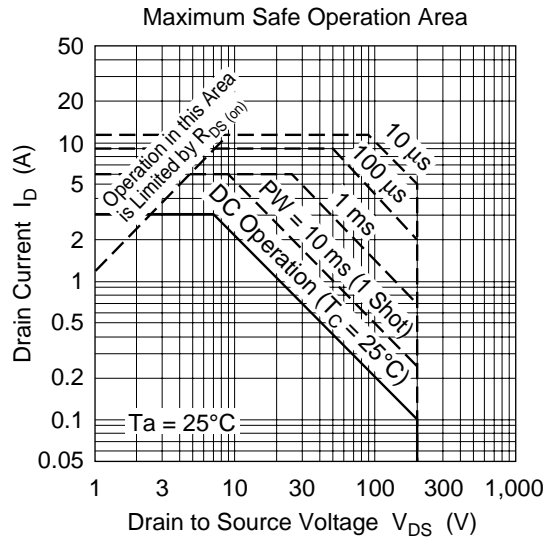
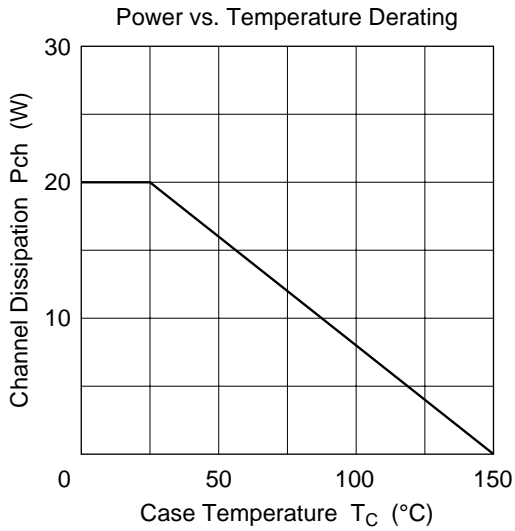
Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
 2. Value at $T_c = 25^\circ C$

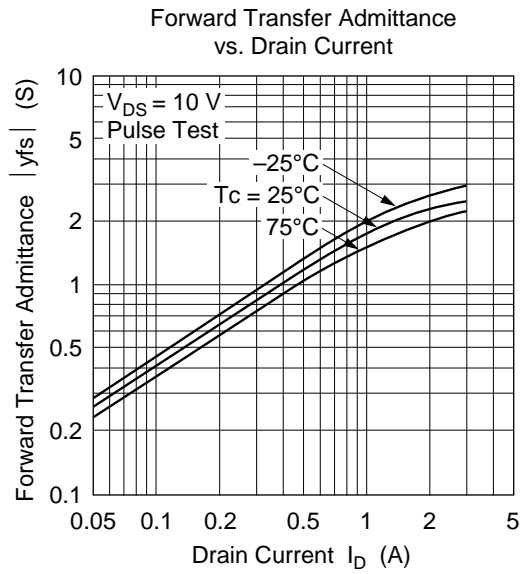
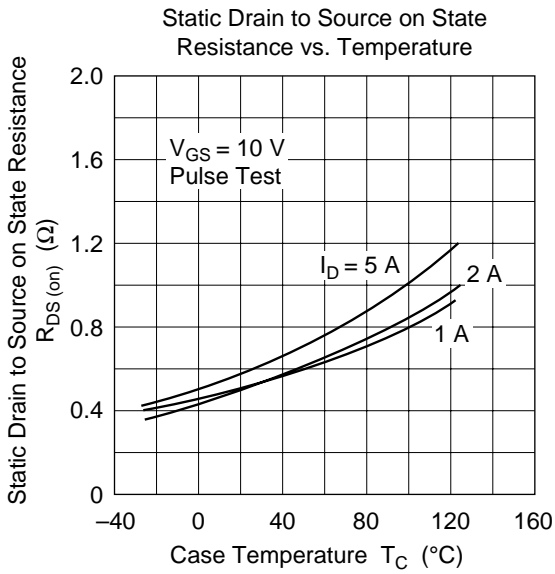
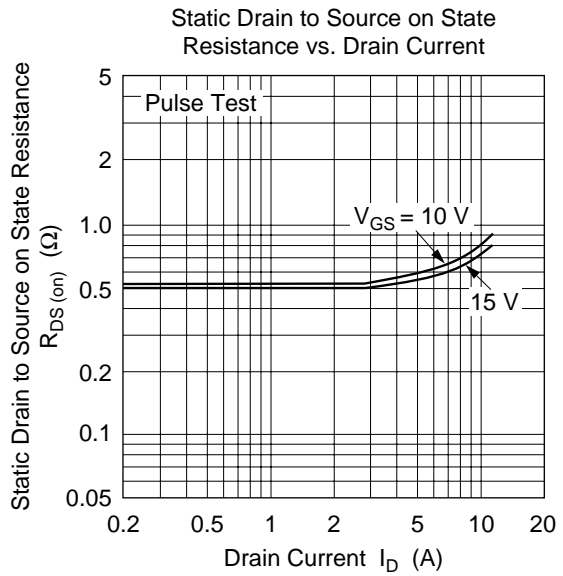
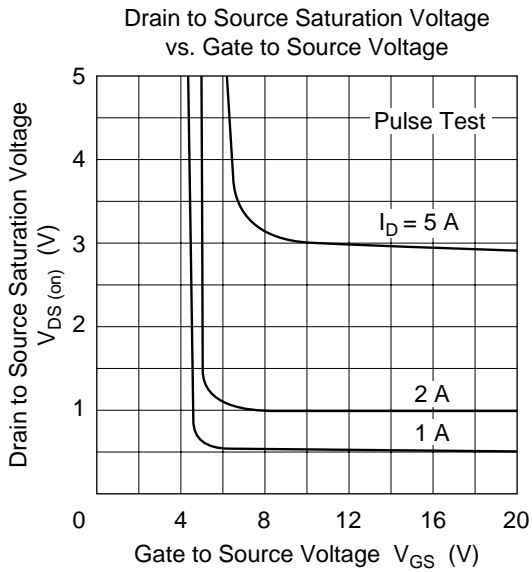
Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|--|---------------|-----|-----|-----|------|--|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 200 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to source breakdown voltage | $V_{(BR)GSS}$ | ±20 | — | — | V | $I_G = \pm 100 \mu A$, $V_{DS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ±10 | μA | $V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$ |
| Zero gate voltage drain current | I_{DSS} | — | — | 100 | μA | $V_{DS} = 160 \text{ V}$, $V_{GS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 2.0 | — | 4.0 | V | $I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$ |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 0.5 | 0.8 | Ω | $I_D = 2 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$ |
| Forward transfer admittance | yfs | 1.5 | 2.3 | — | S | $I_D = 2 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$ |
| Input capacitance | C_{iss} | — | 380 | — | pF | $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, |
| Output capacitance | C_{oss} | — | 150 | — | pF | $f = 1 \text{ MHz}$ |
| Reverse transfer capacitance | C_{rss} | — | 35 | — | pF | |
| Turn-on delay time | $t_{d(on)}$ | — | 10 | — | ns | $I_D = 2 \text{ A}$, $V_{GS} = 10 \text{ V}$, |
| Rise time | t_r | — | 27 | — | ns | $R_L = 15 \Omega$ |
| Turn-off delay time | $t_{d(off)}$ | — | 30 | — | ns | |
| Fall time | t_f | — | 20 | — | ns | |
| Body to drain diode forward voltage | V_{DF} | — | 1.0 | — | V | $I_F = 3 \text{ A}$, $V_{GS} = 0$ |
| Body to drain diode reverse recovery time | t_{rr} | — | 120 | — | ns | $I_F = 3 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 50 \text{ A}/\mu s$ |

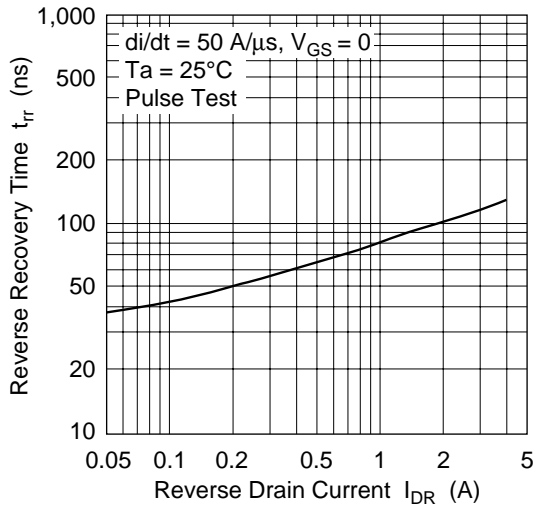
Note: 1. Pulse test

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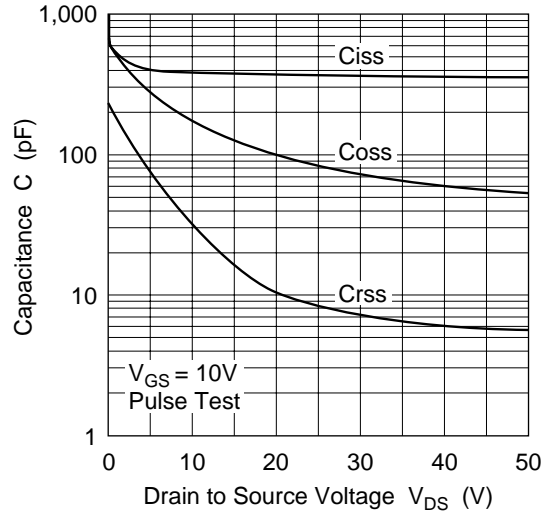




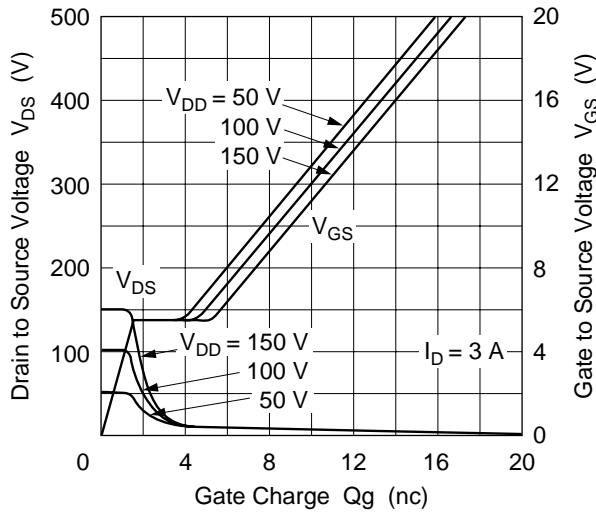
Body to Drain Diode Reverse Recovery Time



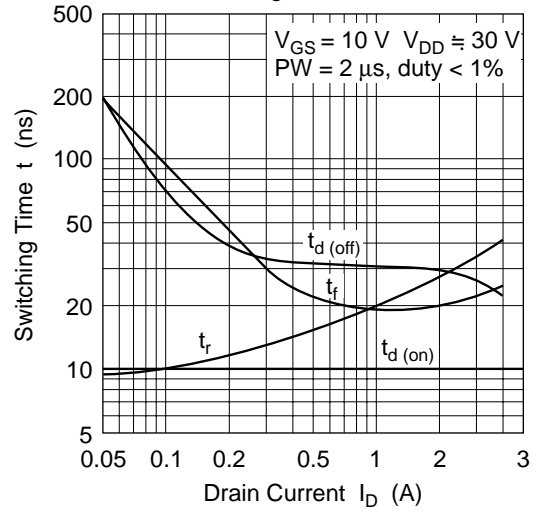
Typical Capacitance vs. Drain to Source Voltage

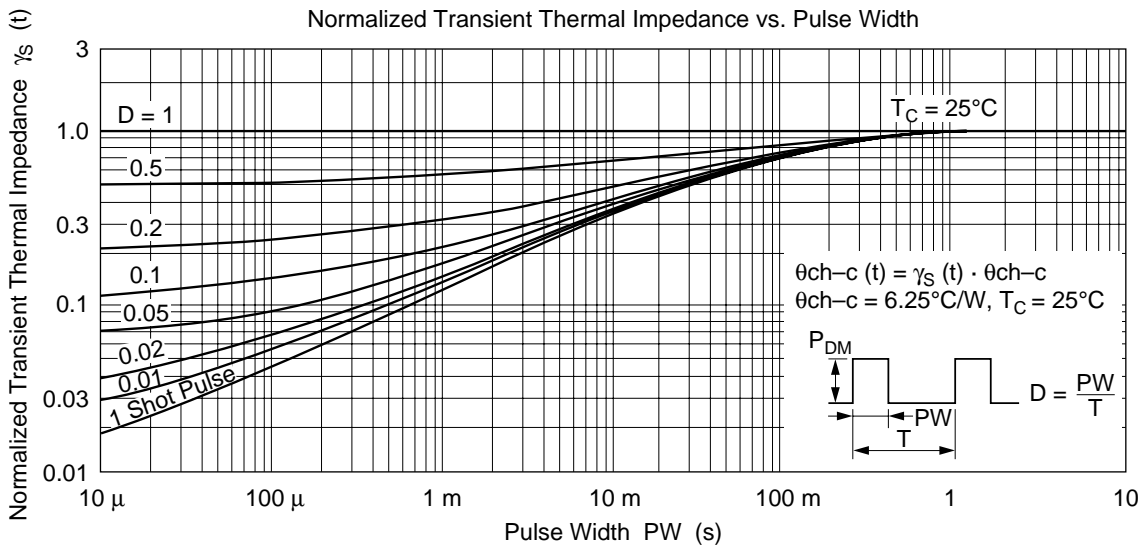
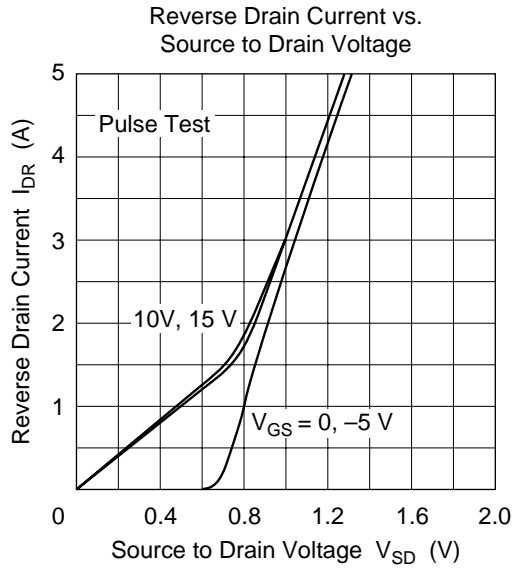


Dynamic Input Characteristics

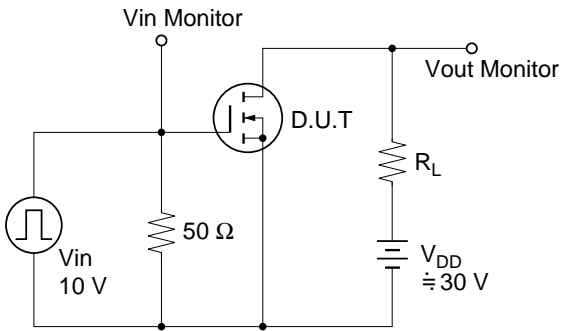


Switching Characteristics

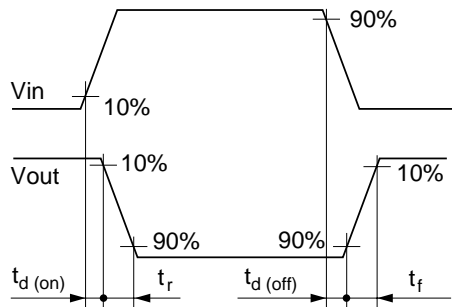




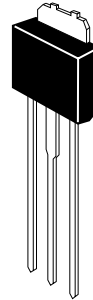
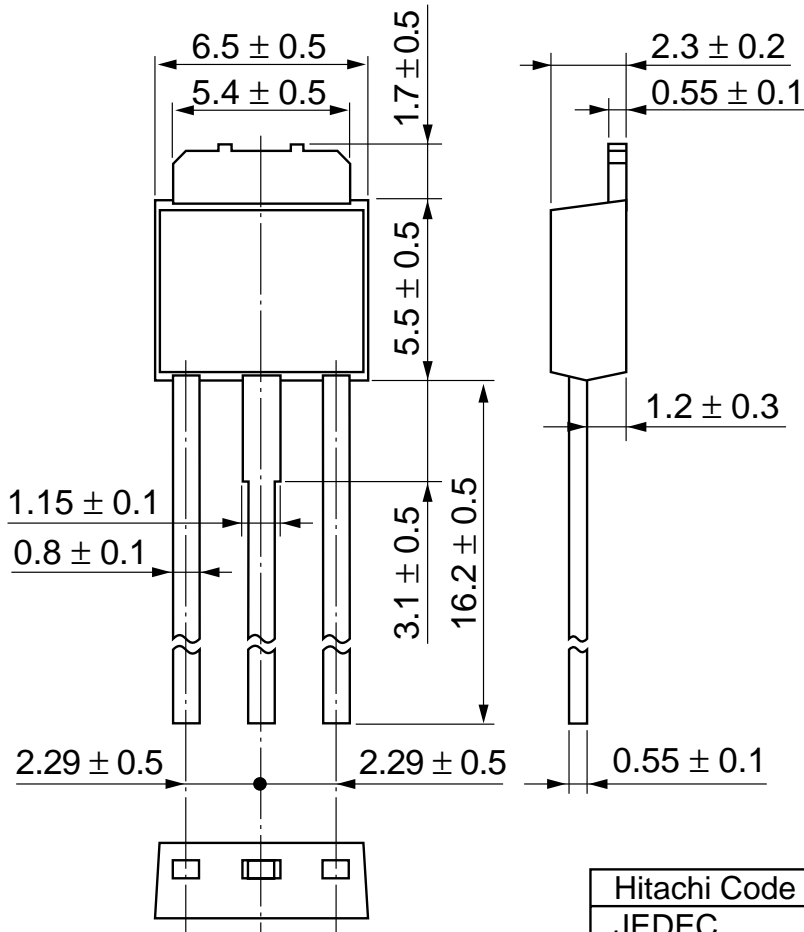
Switching Time Test Circuit



Waveforms



Unit: mm



| | |
|--------------------------|--------------|
| Hitachi Code | DPAK (L)-(1) |
| JEDEC | — |
| EIAJ | Conforms |
| Weight (reference value) | 0.42 g |

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