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# 2SK2084(L), 2SK2084(S)

Silicon N-Channel MOS FET

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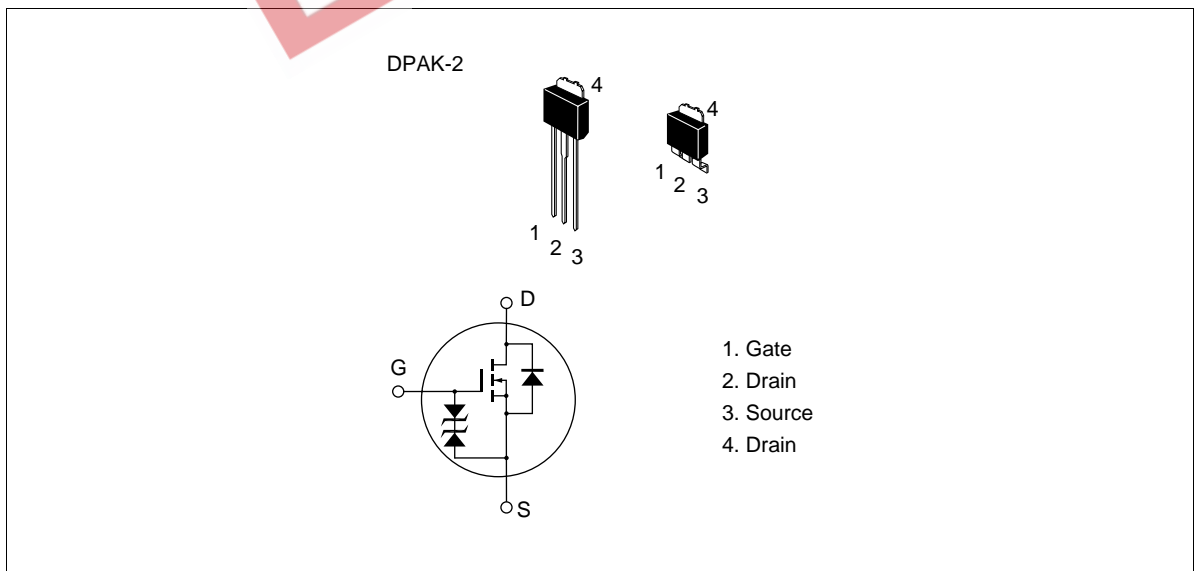
## Application

High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source
- Suitable for Switching regulator, DC - DC converter

## Outline



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

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	20	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	7	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	28	A
Body to drain diode reverse drain current	I <sub>DR</sub>	7	A
Channel dissipation	Pch <sup>*2</sup>	20	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

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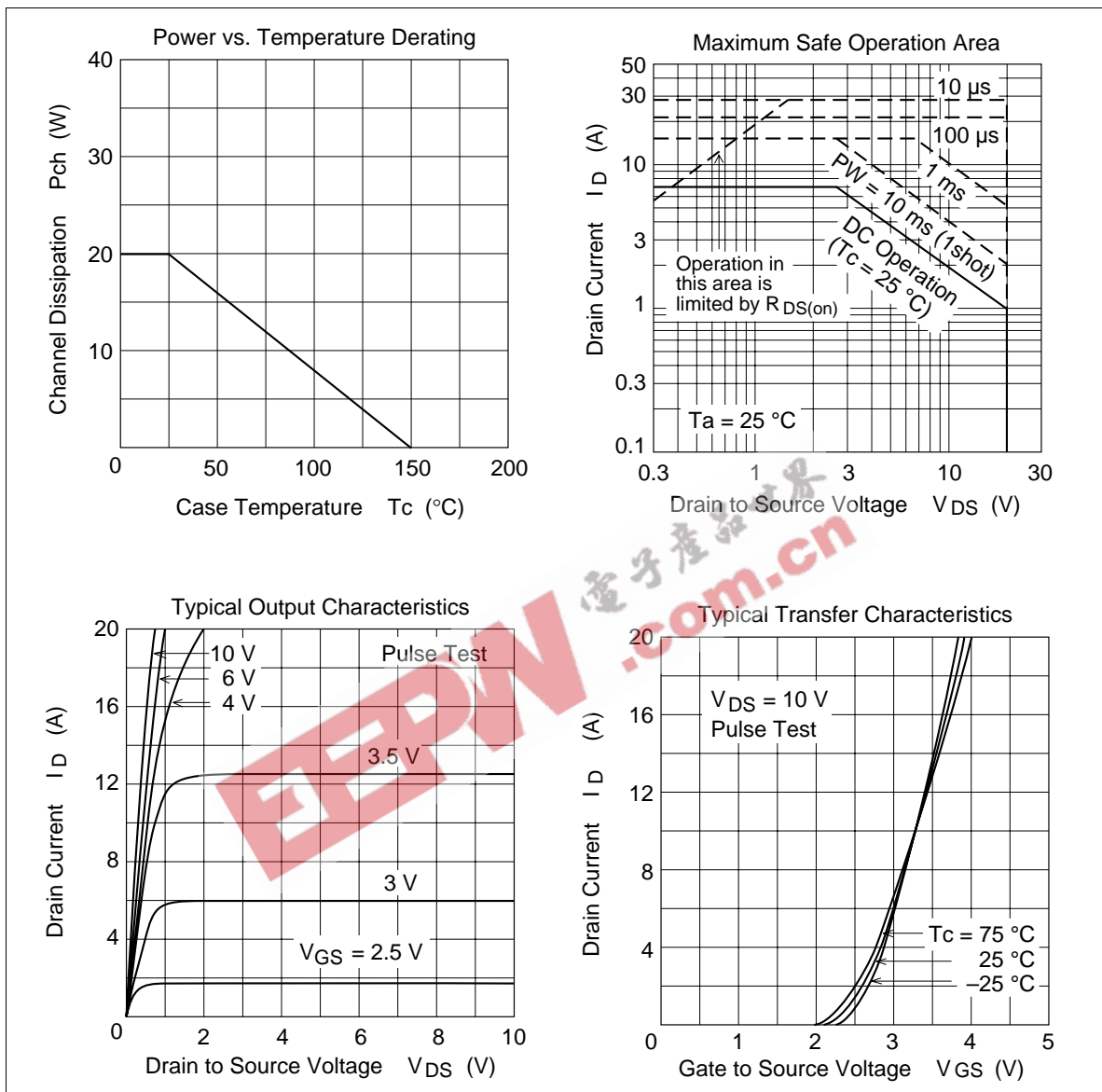
## 2SK2084(L), 2SK2084(S)

### Electrical Characteristics (T<sub>a</sub> = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	20	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \text{ } \mu\text{A}, V_{DS} = 0$
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	$V_{DS} = 16 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.04	0.053	Ω	$I_D = 4 \text{ A}$ $V_{GS} = 10 \text{ V}^{*1}$
		—	0.058	0.075	Ω	$I_D = 4 \text{ A}$ $V_{GS} = 4 \text{ V}^{*1}$
Forward transfer admittance	y <sub>fs</sub>	5	9	—	S	$I_D = 4 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	C <sub>iss</sub>	—	800	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	C <sub>oss</sub>	—	680	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C <sub>rss</sub>	—	165	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d(on)</sub>	—	15	—	ns	$I_D = 4 \text{ A}$
Rise time	t <sub>r</sub>	—	60	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	t <sub>d(off)</sub>	—	100	—	ns	R <sub>L</sub> = 5 Ω
Fall time	t <sub>f</sub>	—	80	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.9	—	V	$I_F = 7 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	80	—	ns	$I_F = 7 \text{ A}, V_{GS} = 0,$ $di_F / dt = 20 \text{ A} / \mu\text{s}$

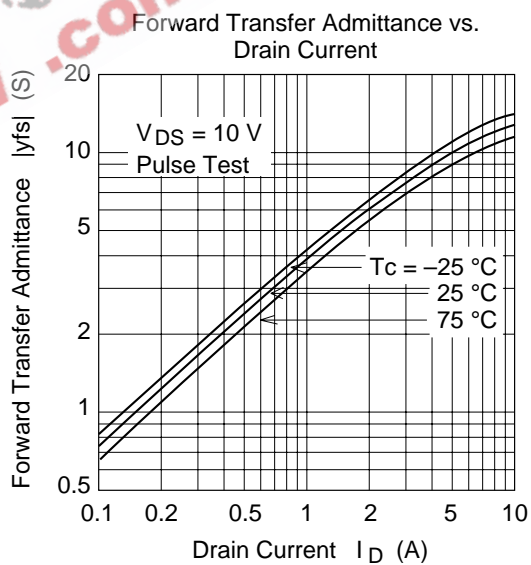
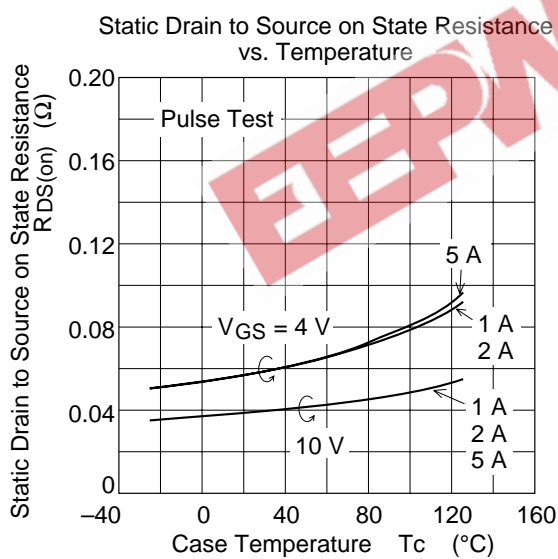
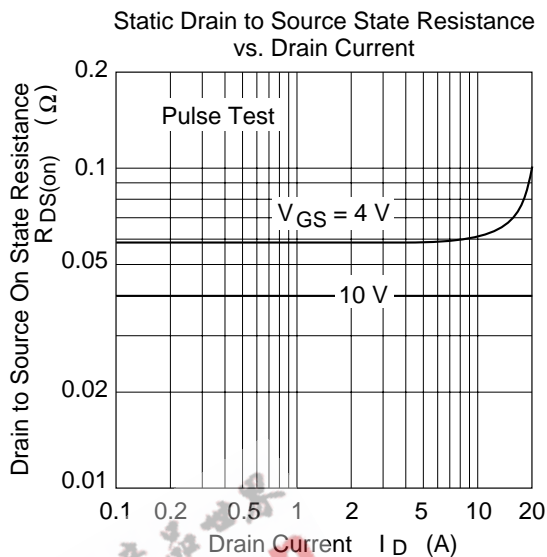
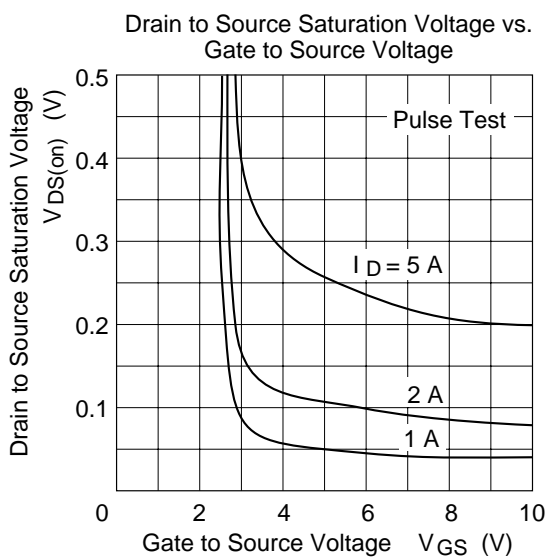
Note 1. Pulse Test

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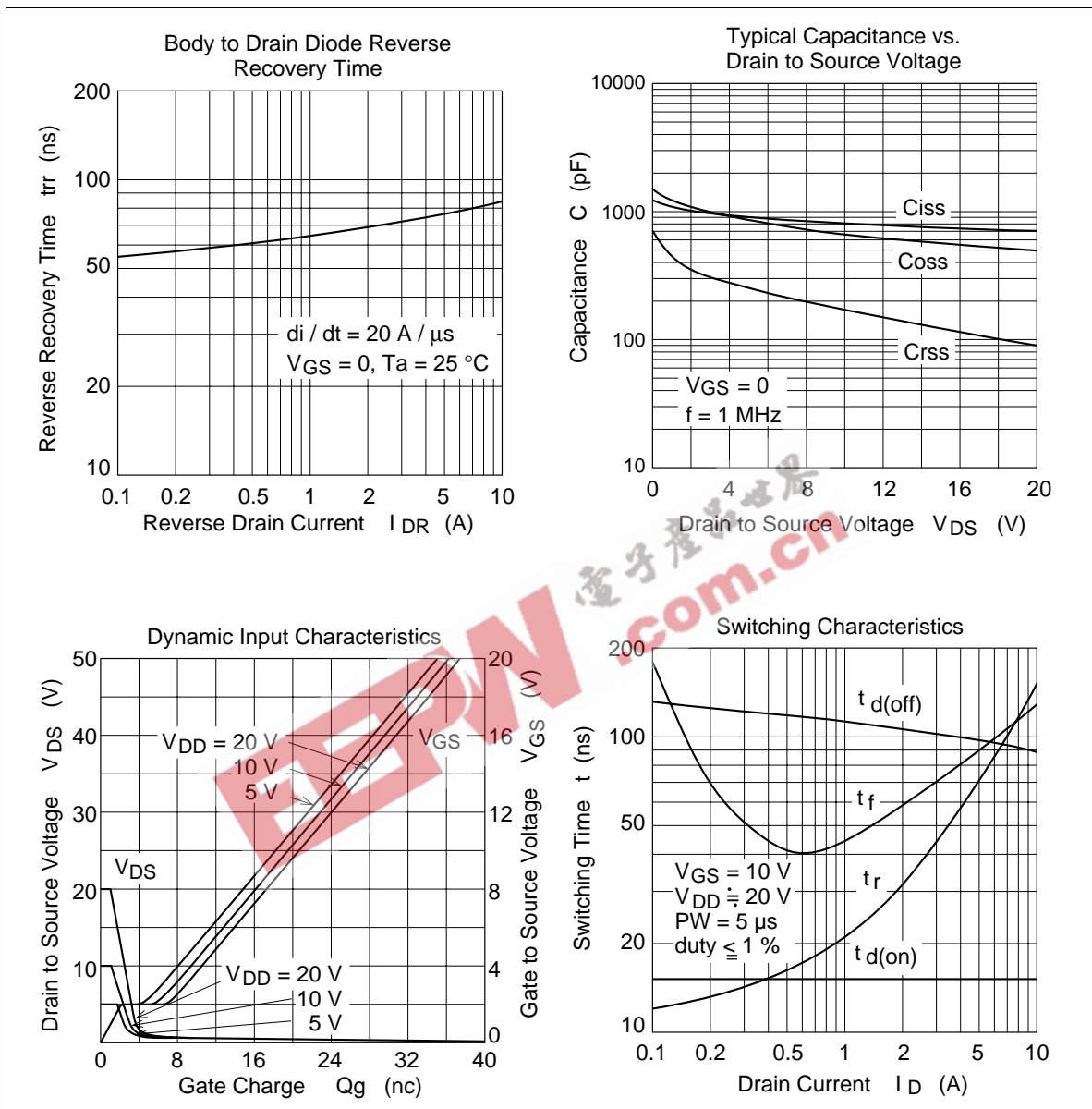


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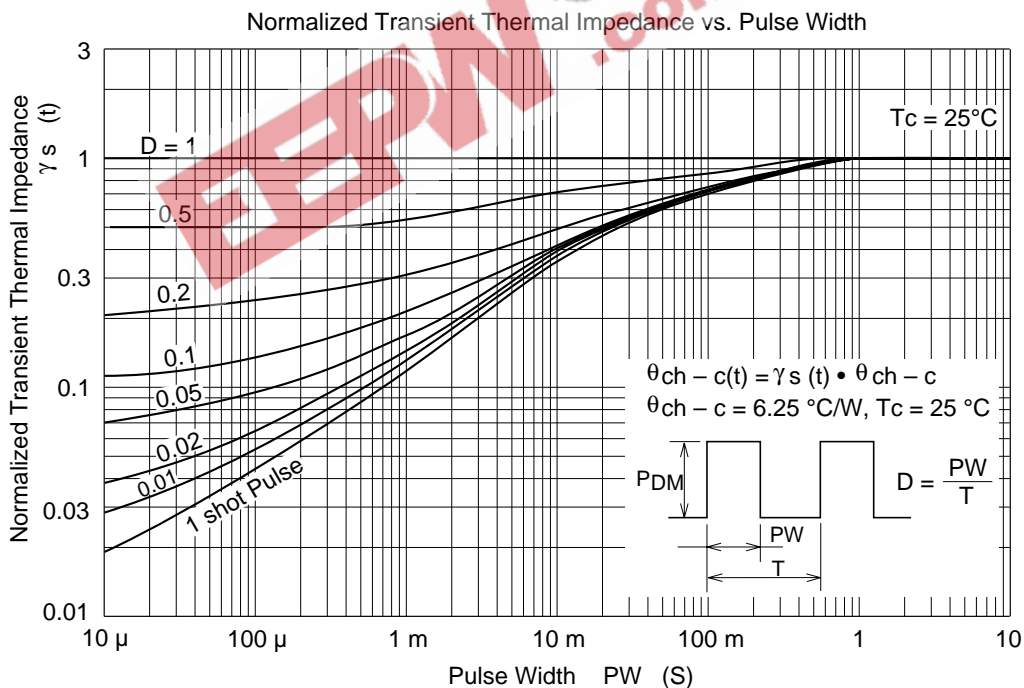
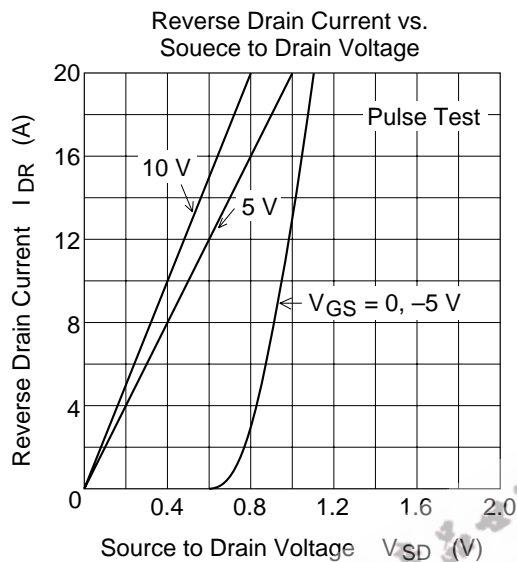
**2SK2084(L), 2SK2084(S)**



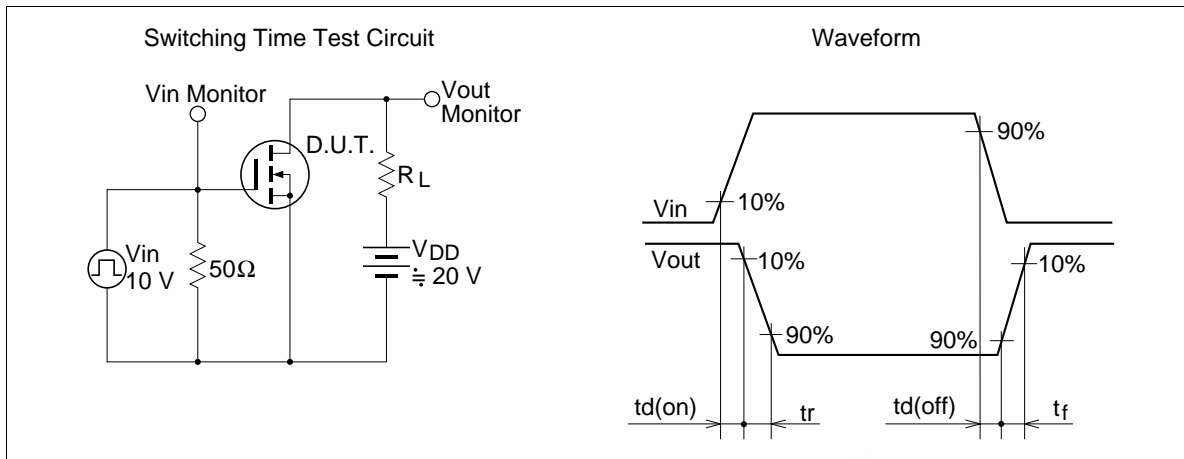
## 2SK2084(L), 2SK2084(S)



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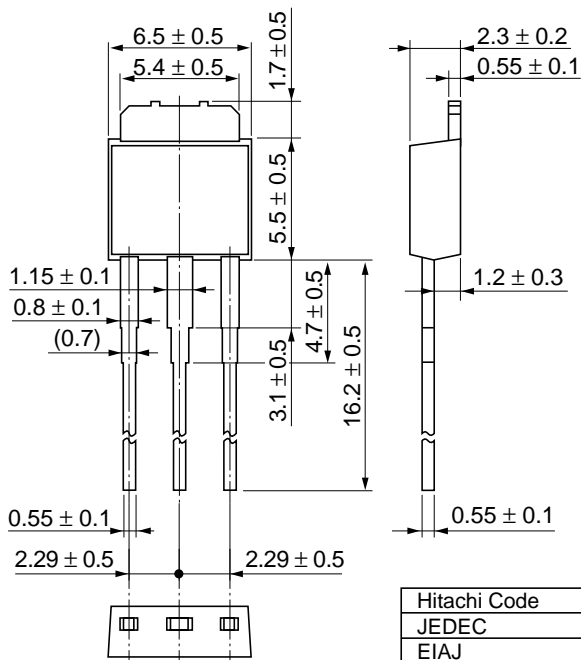
## 2SK2084(L), 2SK2084(S)



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Unit: mm



Hitachi Code	DPAK (L)-(2)
JEDEC	—
EIAJ	—
Weight (reference value)	0.42 g

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