

2SJ506(L), 2SJ506(S)

Silicon P Channel MOS FET
High Speed Power Switching

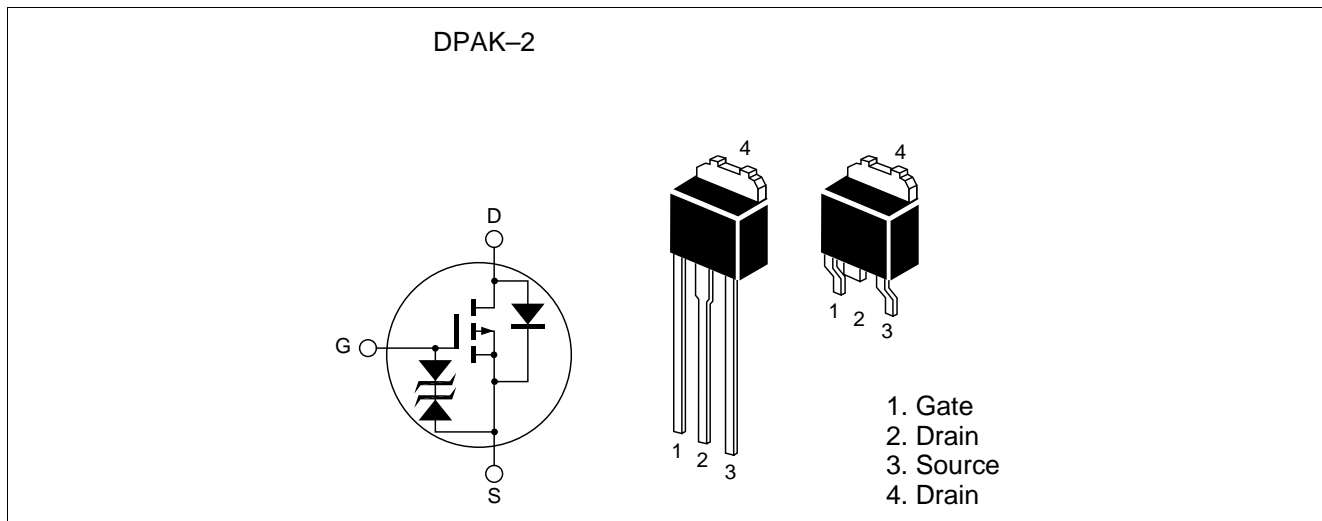
HITACHI

ADE-208-548
Target Specification 1st. Edition

Features

- Low on-resistance
 $R_{DS(on)} = 0.065 \Omega$ typ. (at $V_{GS} = -10V$, $I_D = -5A$)
- Low drive current
- High speed switching
- 4V gate drive devices.

Outline



2SJ506(L), 2SJ506(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	-10	A
Drain peak current	$I_{D(pulse)}^{Note1}$	-40	A
Body to drain diode reverse drain current	I_{DR}	-10	A
Channel dissipation	P_{ch}^{Note2}	20	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

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

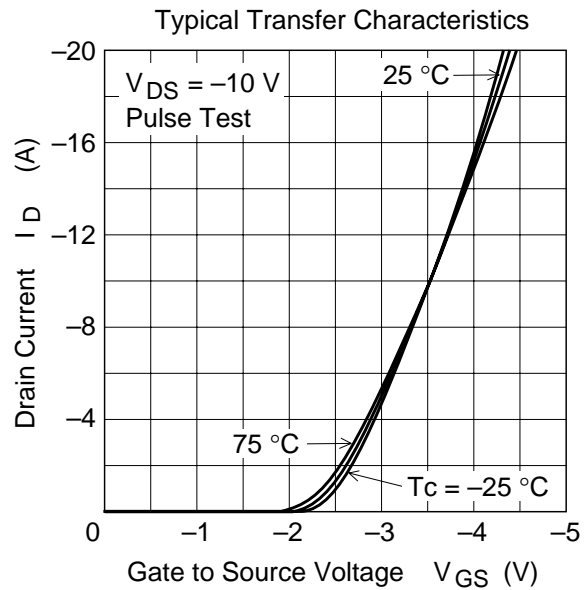
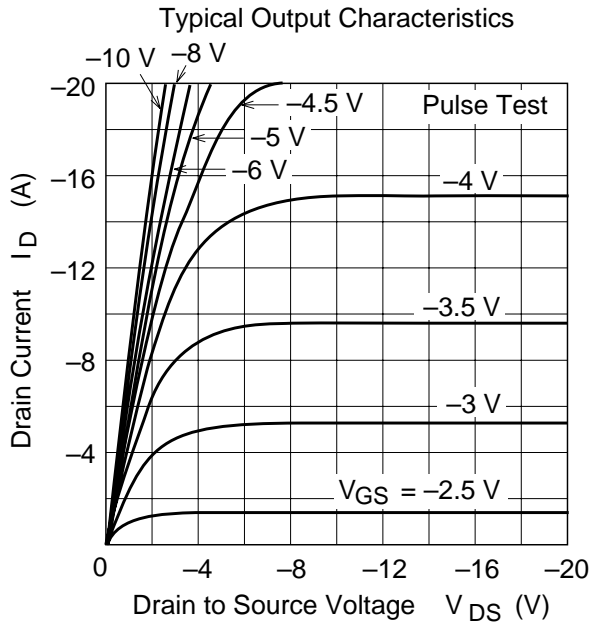
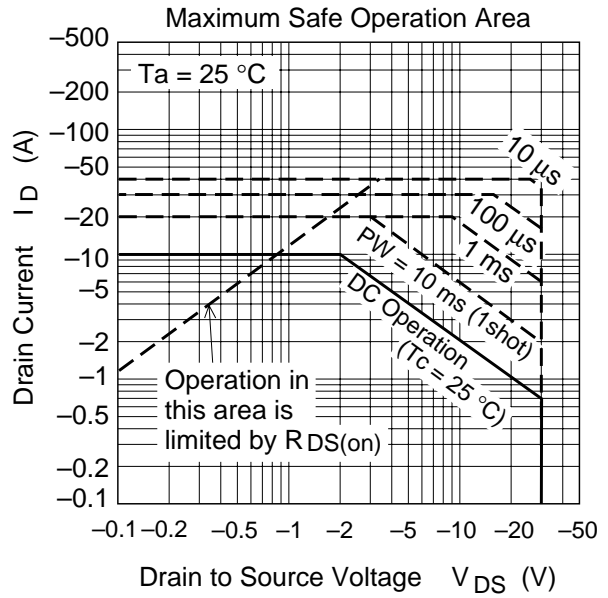
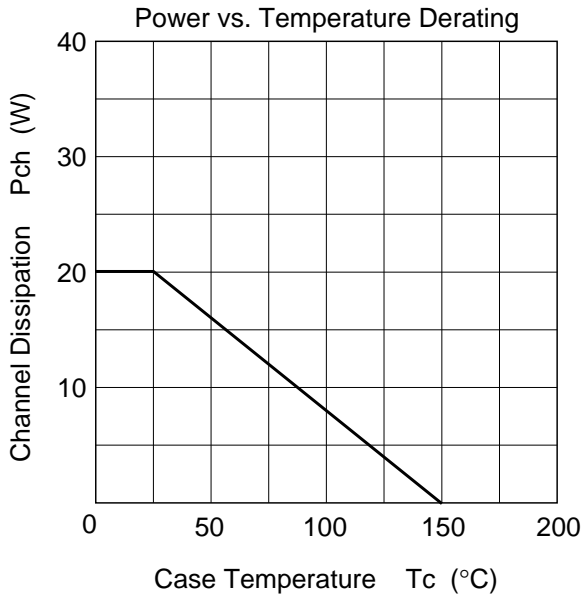
2. Value at $T_c = 25^\circ C$

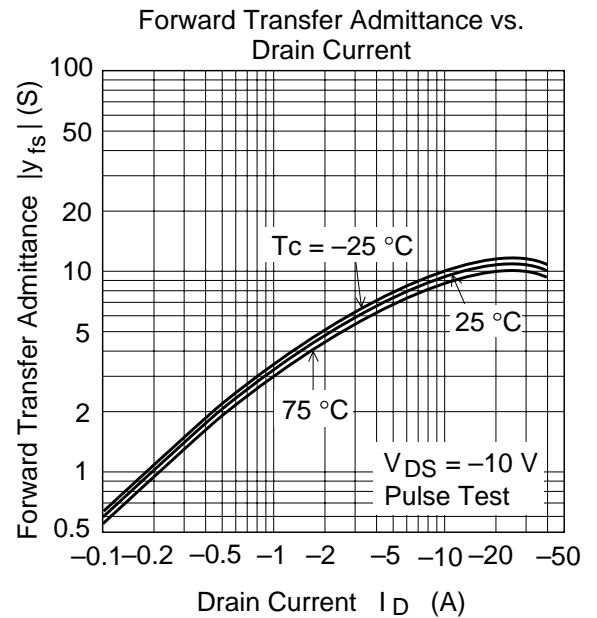
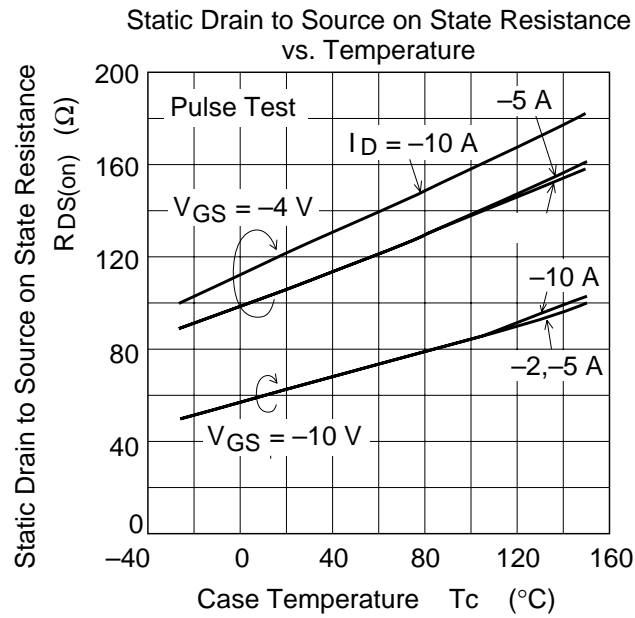
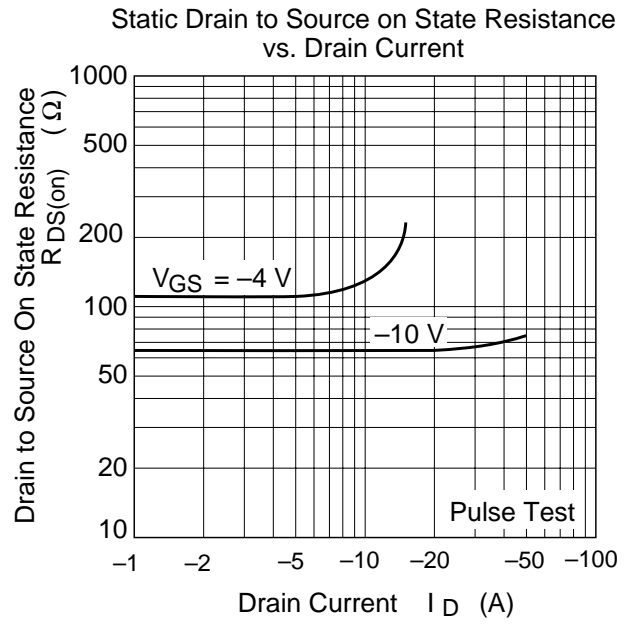
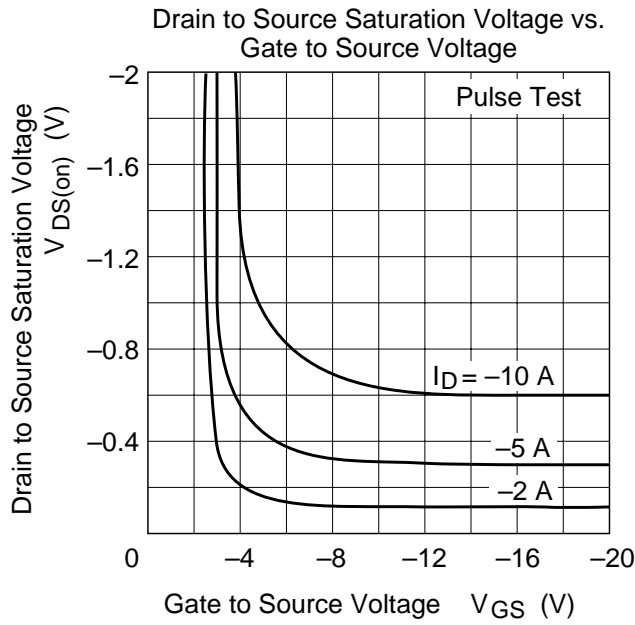
Electrical Characteristics (Ta = 25°C)

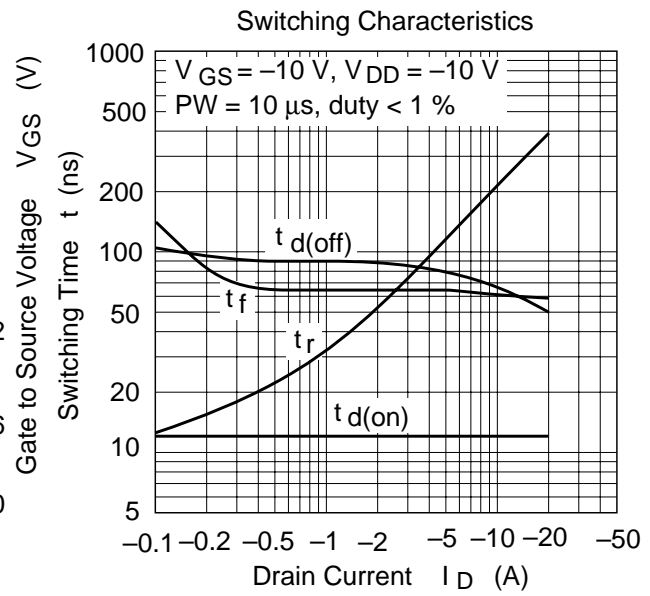
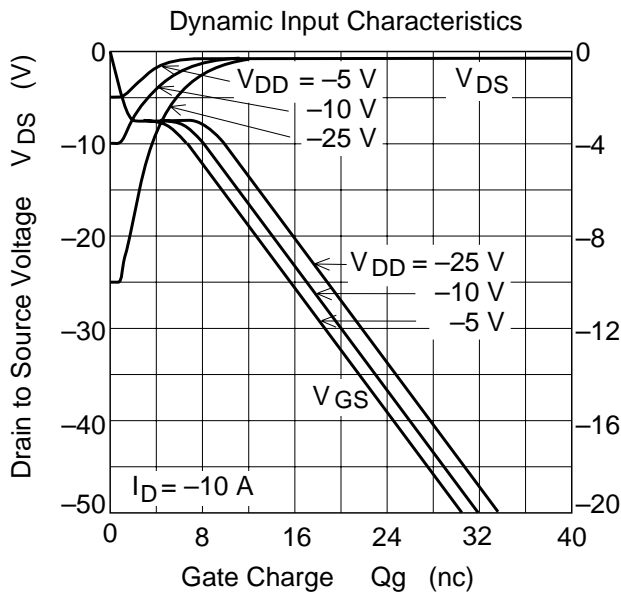
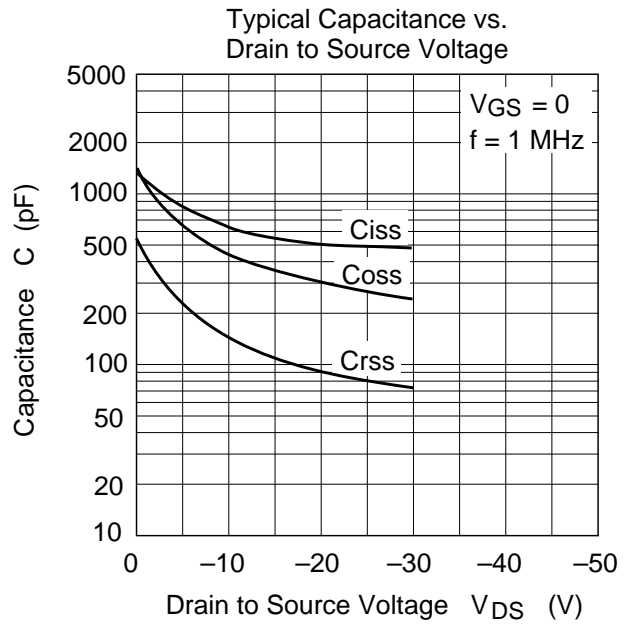
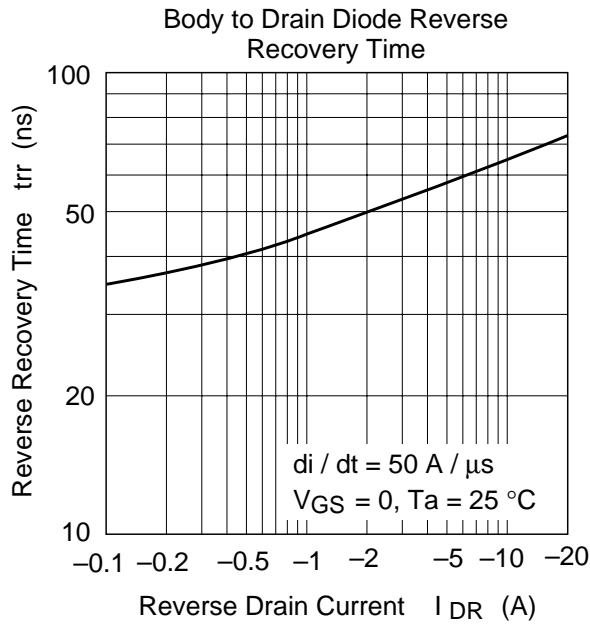
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10\text{mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100\mu\text{A}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-10	μA	$V_{DS} = -30\text{V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$I_D = -1\text{mA}$, $V_{DS} = -10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	65	85	$\text{m}\Omega$	$I_D = -5\text{A}$, $V_{GS} = -10\text{V}$ ^{Note3}
	$R_{DS(on)}$	—	110	180	$\text{m}\Omega$	$I_D = -5\text{A}$, $V_{GS} = -4\text{V}$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	10	16	—	S	$I_D = -5\text{A}$, $V_{DS} = -10\text{V}$ ^{Note3}
Input capacitance	C_{iss}	—	660	—	pF	$V_{DS} = -10\text{V}$
Output capacitance	C_{oss}	—	440	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	140	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	12	—	ns	$I_D = -5\text{A}$, $R_L = 2\Omega$
Rise time	t_r	—	65	—	ns	$V_{GS} = -10\text{V}$
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	
Fall time	t_f	—	65	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-1.05	—	V	$I_F = -10\text{A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	65	—	ns	$I_F = -10\text{A}$, $V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$

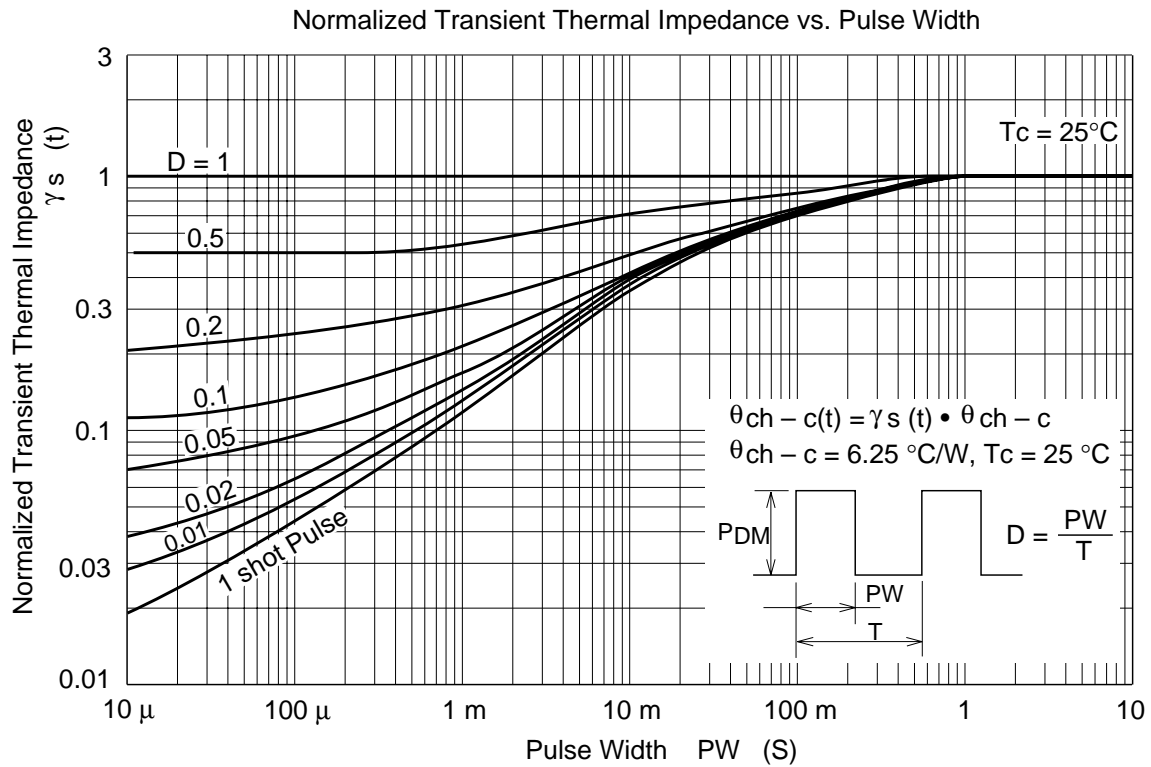
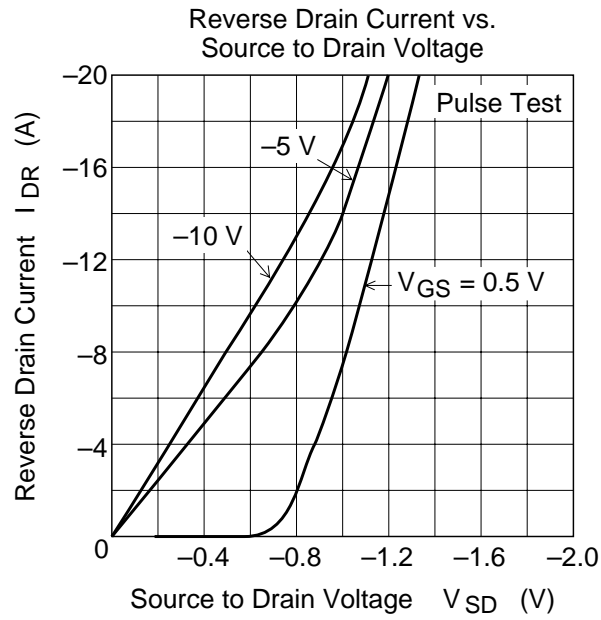
Note: 3. Pulse test

Main Characteristics

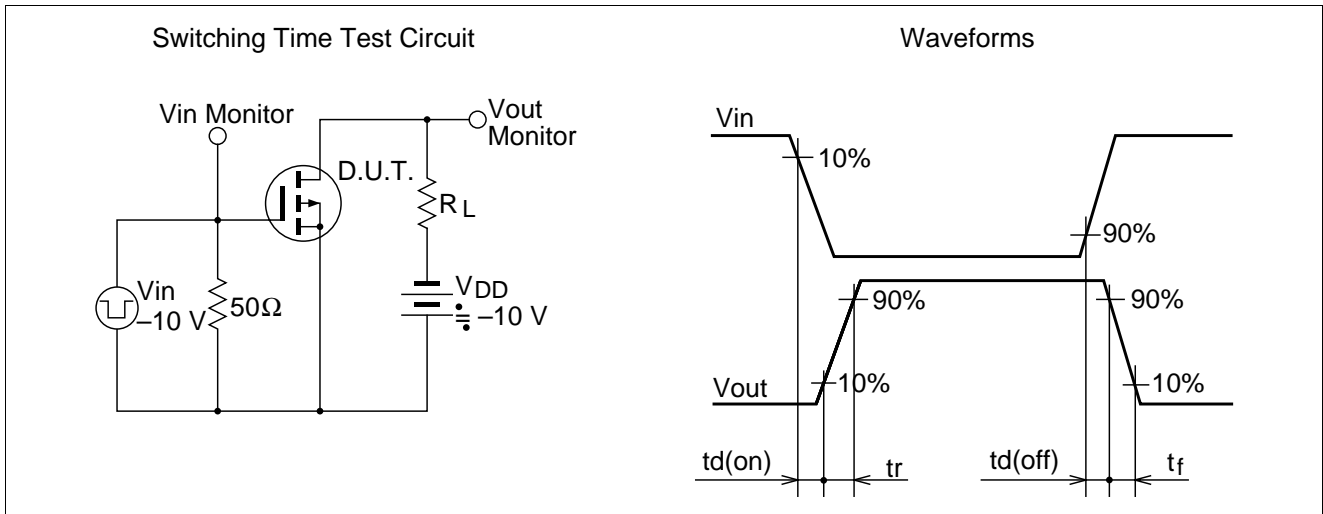






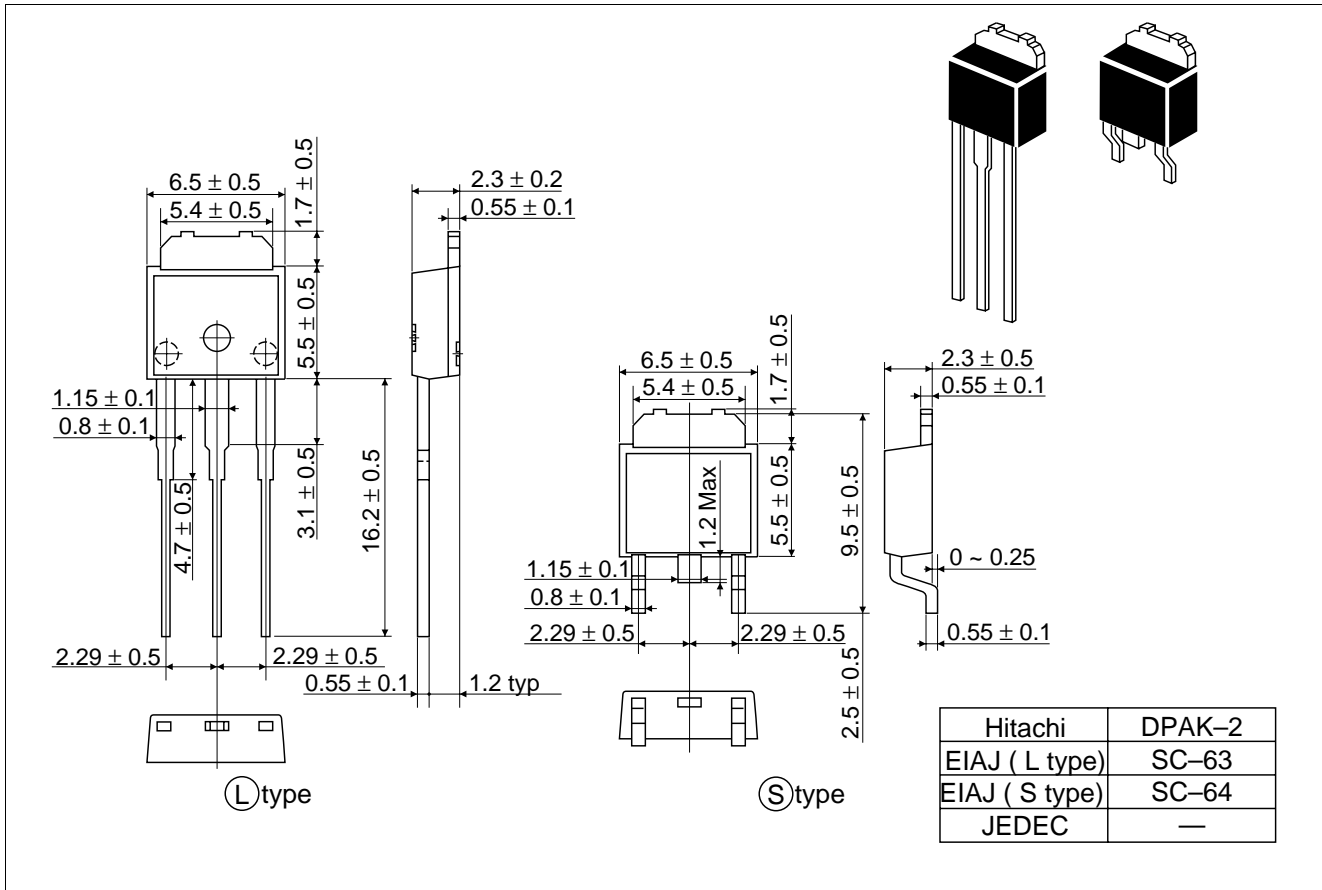


2SJ506(L), 2SJ506(S)



Package Dimensions

Unit: mm



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