

# 2SJ315

DC-DC Converter

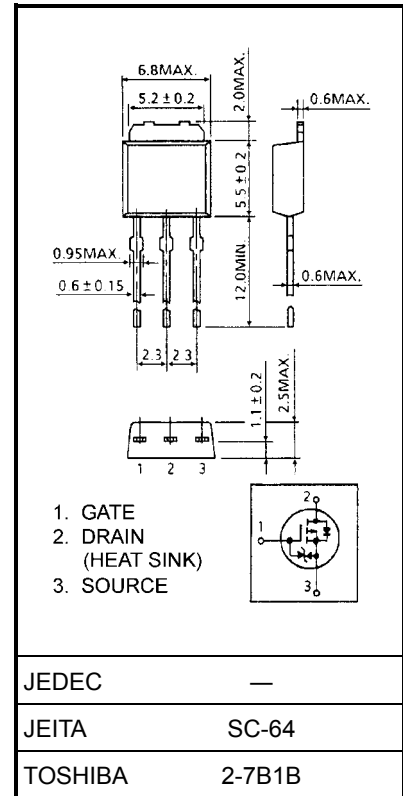
Unit: mm

## FEATURES

- 4- Volt gate drive
- Low drain-source ON resistance :  $R_{DS(ON)} = 0.25 \Omega$  (typ.)
- High forward transfer admittance :  $|Y_{fs}| = 3.0 S$  (typ.)
- Low leakage current :  $I_{DSS} = -100 \mu A$  (max) ( $V_{DS} = -60 V$ )
- Enhancement-mode :  $V_{th} = -0.8 \sim -2.0 V$  ( $V_{DS} = -10 V, I_D = -1 mA$ )

## Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DSS}$	-60	V
Drain-gate voltage ( $R_{GS} = 20 k\Omega$ )	$V_{DGR}$	-60	V
Gate-source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	DC (Note 1)	$I_D$	-5
	Pulse(Note 1)	$I_{DP}$	-20
Drain power dissipation ( $T_c = 25^\circ C$ )	$P_D$	20	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C



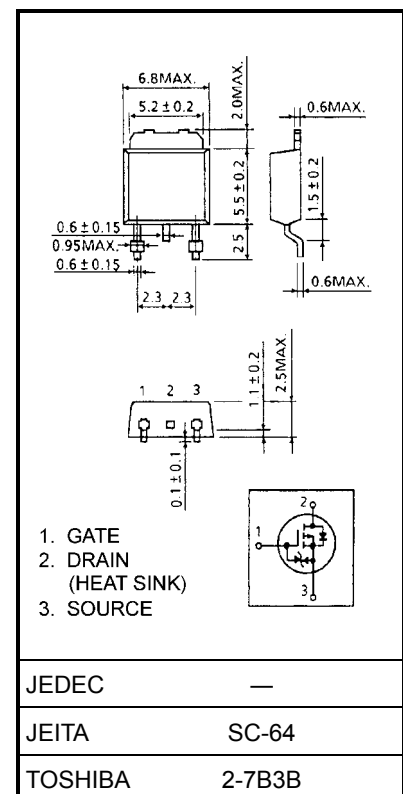
Weight: 0.36 g (typ.)

## Thermal Characteristics

Characteristics	Symbol	Max	Unit
Thermal resistance, channel to case	$R_{th(ch-c)}$	6.25	°C / W
Thermal resistance, channel to ambient	$R_{th(ch-a)}$	125	°C / W

Note 1: Please use devices on condition that the channel temperature is below 150°C.

This transistor is an electrostatic sensitive device.  
Please handle with caution.



Weight: 0.36 g (typ.)

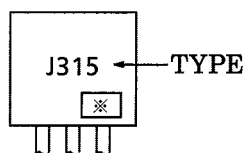
## Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		$I_{GSS}$	$V_{GS} = \pm 16\text{ V}, V_{DS} = 0\text{ V}$	—	—	$\pm 10$	$\mu\text{A}$
Drain cut-off current		$I_{DSS}$	$V_{DS} = -60\text{ V}, V_{GS} = 0\text{ V}$	—	—	-100	$\mu\text{A}$
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = -10\text{ mA}, V_{GS} = 0\text{ V}$	-60	—	—	V
Gate threshold voltage		$V_{th}$	$V_{DS} = -10\text{ V}, I_D = -1\text{ mA}$	-0.8	—	-2.0	V
Drain-source ON resistance		$R_{DS(ON)}$	$V_{GS} = -4\text{ V}, I_D = -2.5\text{ A}$	—	0.31	0.40	$\Omega$
			$V_{GS} = -10\text{ V}, I_D = -2.5\text{ A}$	—	0.21	0.25	
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = -10\text{ V}, I_D = -2.5\text{ A}$	1.8	3.0	—	S
Input capacitance		$C_{iss}$	$V_{DS} = -10\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	—	500	—	pF
Reverse transfer capacitance		$C_{rss}$		—	90	—	
Output capacitance		$C_{oss}$		—	290	—	
Switching time	Rise time	$t_r$		—	20	—	ns
	Turn-on time	$t_{on}$		—	30	—	
	Fall time	$t_f$		—	30	—	
	Turn-off time	$t_{off}$		Duty $\leq 1\%$ , $t_W = 10\mu\text{s}$	—	140	
Total gate charge (Gate-source plus gate-drain)		$Q_g$	$V_{DD} \approx -48\text{ V}, V_{GS} = -10\text{ V}, I_D = -5\text{ A}$	—	20	—	nC
Gate-source charge		$Q_{gs}$		—	13	—	
Gate-drain ("miller") charge		$Q_{gd}$		—	7	—	

## Source-Drain Ratings and Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Continuous drain reverse current (Note 1)	$I_{DR}$	—	—	—	-5	A
Pulse drain reverse current (Note 1)	$I_{DRP}$	—	—	—	-20	A
Forward voltage (diode)	$V_{DSF}$	$I_{DR} = -5\text{ A}, V_{GS} = 0\text{ V}$	—	—	1.5	V

## Marking



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

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