

# 2SK3878

## Switching Regulator Applications

- Low drain-source ON resistance:  $R_{DS(ON)} = 1.0 \Omega$  (typ.)
- High forward transfer admittance:  $|Y_{fs}| = 7.0 S$  (typ.)
- Low leakage current:  $I_{DSS} = 100 \mu A$  (max) ( $V_{DS} = 720 V$ )
- Enhancement model:  $V_{th} = 2.0 \sim 4.0 V$  ( $V_{DS} = 10 V, I_D = 1 mA$ )

## Absolute Maximum Ratings ( $T_a = 25^\circ C$ )

Characteristic		Symbol	Rating	Unit
Drain-source voltage		$V_{DSS}$	900	V
Drain-gate voltage ( $R_{GS} = 20 k\Omega$ )		$V_{DGR}$	900	V
Gate-source voltage		$V_{GSS}$	$\pm 30$	V
Drain current	DC (Note 1)	$I_D$	9	A
	Pulse (Note 1)	$I_{DP}$	27	
Drain power dissipation ( $T_c = 25^\circ C$ )		$P_D$	150	W
Single pulse avalanche energy (Note 2)		$E_{AS}$	778	mJ
Avalanche current		$I_{AR}$	9	A
Repetitive avalanche energy (Note 3)		$E_{AR}$	15	mJ
Channel temperature		$T_{ch}$	150	$^\circ C$
Storage temperature range		$T_{stg}$	$-55 \sim 150$	$^\circ C$

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## Thermal Characteristics

Characteristic	Symbol	Max	Unit
Thermal resistance, channel to case	$R_{th(ch-c)}$	0.833	$^\circ C/W$
Thermal resistance, channel to ambient	$R_{th(ch-a)}$	50	$^\circ C/W$

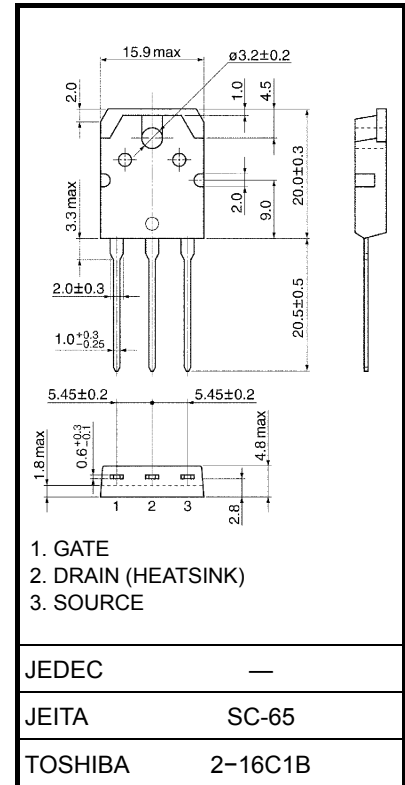
Note 1: Ensure that the channel temperature does not exceed  $150^\circ C$  during use of the device.

Note 2:  $V_{DD} = 90 V, T_{ch} = 25^\circ C, L = 17.6 mH, R_G = 25 \Omega, I_{AR} = 9 A$

Note 3: Repetitive rating: pulse width limited by max junction temperature

This transistor is an electrostatic-sensitive device. Handle with care.

Unit: mm



Weight: 4.6 g (typ.)

