

2SK3067

Chopper Regulator, DC-DC Converter and Motor Drive Applications

- Low drain-source ON resistance : $R_{DS\text{ (ON)}} = 4.2\ \Omega$ (typ.)
- High forward transfer admittance : $|Y_{fs}| = 1.7\ \text{S}$ (typ.)
- Low leakage current : $I_{DSS} = 100\ \mu\text{A}$ (max) ($V_{DS} = 600\ \text{V}$)
- Enhancement mode : $V_{th} = 2.0\text{ to }4.0\ \text{V}$ ($V_{DS} = 10\ \text{V}$, $I_D = 1\ \text{mA}$)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	600	V
Drain-gate voltage ($R_{GS} = 20 \text{ k}\Omega$)	V_{DGR}	600	V
Gate-source voltage	V_{GSS}	± 30	V
Drain current	DC (Note 1)	I_D	2
	Pulse ($t = 1 \text{ ms}$) (Note 1)	I_{DP}	5
	Pulse ($t = 100 \mu\text{s}$) (Note 1)	I_{DP}	8
Drain power dissipation ($T_c = 25^\circ\text{C}$)	P_D	25	W
Single pulse avalanche energy (Note 2)	E_{AS}	93	mJ
Avalanche current	I_{AR}	2	A
Repetitive avalanche energy (Note 3)	E_{AR}	2.5	mJ
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

Unit: mm

5.6 MAX.

10 ± 0.3

1.1

1.1

0.75 ± 0.15

2.54 ± 0.25

2.54 ± 0.25

3.9 ± 0.3

15 ± 0.3

13.0 MIN.

2.7 ± 0.2

0.75 ± 0.15

2.6

4.5 ± 0.2

1. GATE
2. DRAIN
3. SOURCE

JEDEC

JEITA SC-67

TOSHIBA 2.10P1B

Weight: 1.9 g (typ.)

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.).

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Max	Unit
Thermal reverse, channel to case	R_{th} (ch-c)	5.0	°C / W
Thermal reverse, channel to ambient	R_{th} (ch-a)	62.5	°C / W

Note 1: Ensure that the channel temperature does not exceed 150°C.

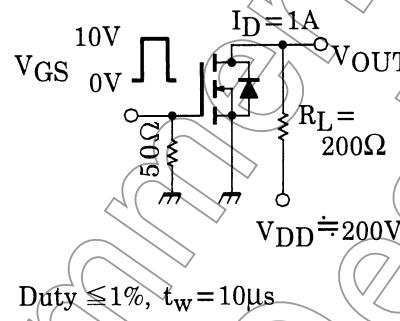
Note 2: $V_{DD} = 90$ V, $T_{ch} = 25^\circ\text{C}$ (initial), $L = 41$ mH, $R_G = 25$ Ω , $I_{AR} = 2$ A

Note 3: Repetitive rating: pulse width limited by maximum channel temperature.

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

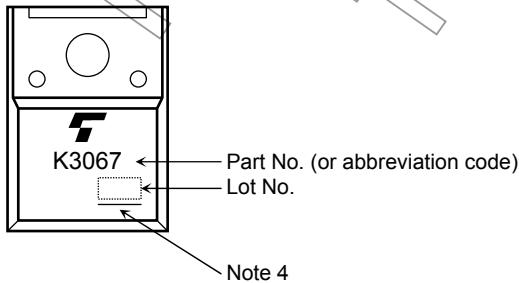
Electrical Characteristics ($T_a = 25^\circ C$)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I_{GSS}	$V_{GS} = \pm 25 V, V_{DS} = 0 V$	—	—	± 10	μA
Gate-source breakdown voltage	$V_{(BR) GSS}$	$I_G = \pm 10 \mu A, V_{DS} = 0 V$	± 30	—	—	V
Drain cut-off current	I_{DSS}	$V_{DS} = 600 V, V_{GS} = 0 V$	—	—	100	μA
Drain-source breakdown voltage	$V_{(BR) DSS}$	$I_D = 10 mA, V_{GS} = 0 V$	600	—	—	V
Gate threshold voltage	V_{th}	$V_{DS} = 10 V, I_D = 1 mA$	2.0	—	4.0	V
Drain-source ON resistance	$R_{DS (ON)}$	$V_{GS} = 10 V, I_D = 1 A$	—	4.2	5.0	Ω
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10 V, I_D = 1 A$	0.8	1.7	—	S
Input capacitance	C_{iss}	$V_{DS} = 10 V, V_{GS} = 0 V, f = 1 MHz$	—	380	—	pF
Reverse transfer capacitance	C_{rss}		—	40	—	
Output capacitance	C_{oss}		—	120	—	
Switching time	Rise time	t_r	—	15	—	ns
	Turn-on time	t_{on}	—	25	—	
	Fall time	t_f	—	20	—	
	Turn-off time	t_{off}	—	80	—	
Total gate charge (Gate-source plus gate-drain)	Q_g	$V_{DD} \approx 480 V, V_{GS} = 10 V, I_D = 2 A$	—	9	—	nC
Gate-source charge	Q_{gs}		—	5	—	
Gate-drain ("miller") charge	Q_{gd}		—	4	—	

Source-Drain Ratings and Characteristics ($T_c = 25^\circ C$)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Continuous drain reverse current (Note 1)	I_{DR}	—	—	—	2	A
Pulse drain reverse current (Note 1)	I_{DRP}	$t = 1 ms$	—	—	5	A
	I_{DRP}	$t = 100 \mu s$	—	—	8	A
Forward voltage (diode)	V_{DSF}	$I_{DR} = 2 A, V_{GS} = 0 V$	—	—	-1.5	V
Reverse recovery time	t_{rr}	$I_{DR} = 2 A, V_{GS} = 0 V$	—	1000	—	ns
Reverse recovery charge	Q_{rr}	$dI_{DR} / dt = 100 A / \mu s$	—	5.0	—	μC

Marking



Note 4: A line under a Lot No. identifies the indication of product Labels.

Not underlined: [[Pb]]/INCLUDES > MCV

Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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