

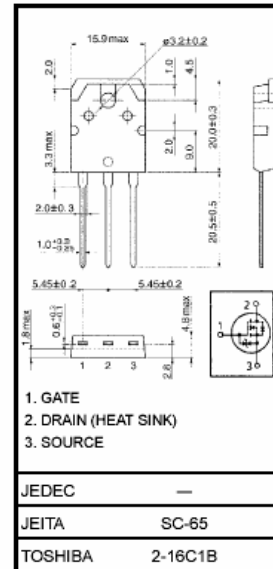
2SK2611

DC-DC Converter, Relay Drive and Motor Drive Applications

- Low drain-source ON resistance : $R_{DS(ON)} = 1.1 \Omega$ (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-mode : $V_{th} = 2.0 \sim 4.0 V$ ($V_{DS} = 10 V, I_D = 1 mA$)

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

Characteristics	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}	± 30	V
Drain current	DC (Note 1)	9	A
	Pulse (Note 1)	27	A
Drain power dissipation ($T_c = 25^\circ C$)	P_D	150	W
Single pulse avalanche energy (Note 2)	E_{AS}	663	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}	-55~150	$^\circ C$



Weight: 4.6 g (typ.)

Thermal Characteristics

Characteristics	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: Please use devices on condition that the channel temperature is below $150^\circ C$.

Note 2: $V_{DD} = 90 V, T_{ch} = 25^\circ C$ (initial), $L = 15 mH, R_G = 25 \Omega, I_{AR} = 9 A$

Note 3: Repetitive rating: Pulse width limited by maximum channel temperature

This transistor is an electrostatic sensitive device.

Please handle with caution.

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Gate leakage current	I_{GSS}	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	—	—	± 10	μA	
Gate-source breakdown voltage	$V_{(BR)GSS}$	$I_G = \pm 10\ \mu\text{A}, V_{DS} = 0\text{ V}$	± 30	—	—	V	
Drain cut-off current	I_{DSS}	$V_{DS} = 720\text{ V}, V_{GS} = 0\text{ V}$	—	—	100	μA	
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 10\text{ mA}, V_{GS} = 0\text{ V}$	900	—	—	V	
Gate threshold voltage	V_{th}	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$	2.0	—	4.0	V	
Drain-source ON resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_D = 4\text{ A}$	—	1.1	1.4	Ω	
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 15\text{ V}, I_D = 4\text{ A}$	3.0	7.0	—	S	
Input capacitance	C_{iss}	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	—	2040	—	pF	
Reverse transfer capacitance	C_{rss}		—	45	—		
Output capacitance	C_{oss}		—	190	—		
Switching time	Rise time	t_r		—	25	—	ns
	Turn-on time	t_{on}		—	60	—	
	Fall time	t_f		—	20	—	
	Turn-off time	t_{off}		—	95	—	
Total gate charge (gate-source plus gate-drain)	Q_g	$V_{DD} = 400\text{ V}, V_{GS} = 10\text{ V}, I_D = 9\text{ A}$	—	58	—	nC	
Gate-source charge	Q_{gs}		—	32	—		
Gate-drain ("miller") Charge	Q_{gd}		—	26	—		

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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Continuous drain reverse current (Note 1)	I_{DR}	—	—	—	9	A
Pulse drain reverse current (Note 1)	I_{DRP}	—	—	—	27	A
Forward voltage (diode)	V_{DSF}	$I_{DR} = 9\text{ A}, V_{GS} = 0\text{ V}$	—	—	-1.9	V
Reverse recovery time	t_{rr}	$I_{DR} = 9\text{ A}, V_{GS} = 0\text{ V}, dI_{DR} / dt = 100\text{ A} / \mu\text{s}$	—	1.6	—	μs
Reverse recovery charge	Q_{rr}		—	20	—	μC

Marking

