

2SK2615

DC-DC Converter, Relay Drive and Motor Drive Applications

- Low drain-source ON resistance : R_{DS (ON)} = 0.23 Ω (typ.)
- High forward transfer admittance : |Y_{fs}| = 2.0 S (typ.)
- Low leakage current : I_{DSS} = 100 μA (max) (V_{DS} = 60 V)
- Enhancement-mode : V_{th} = 0.8~2.0 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 kΩ)		V _{DGR}	60	V
Gate-source voltage		V _{GSS}	±20	V
Drain current	DC (Note 1)	I _D	2	A
	Pulse (Note 1)	I _{DP}	6	
Drain power dissipation		P _D	0.5	W
Drain power dissipation (Note 2)		P _D	1.5	W
Channel temperature		T _{ch}	150	°C
Storage temperature range		T _{stg}	-55~150	°C

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

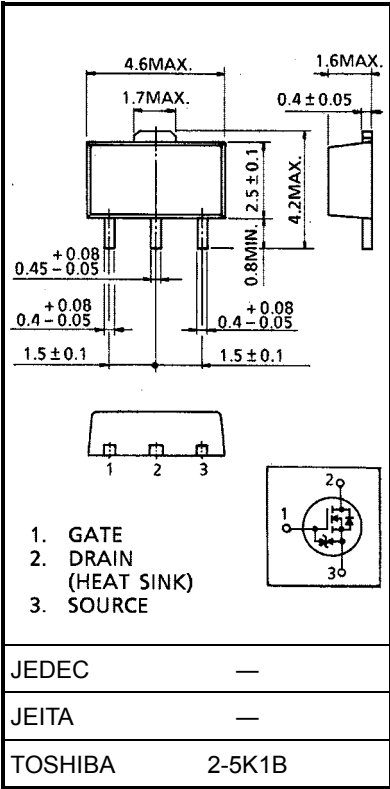
Note 2: Mounted on ceramic substrate (25.4 mm × 25.4 mm × 0.8 mm)

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Thermal resistance, channel to ambient	R _{th (ch-a)}	250	°C / W

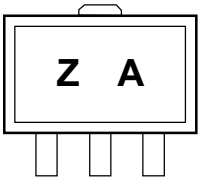
This transistor is an electrostatic sensitive device.
Please handle with caution.

Unit: mm



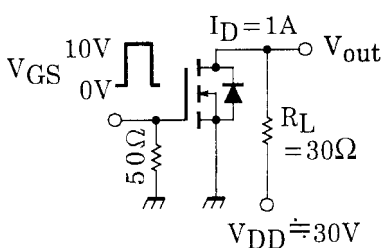
Weight: 0.05 g (typ.)

Marking



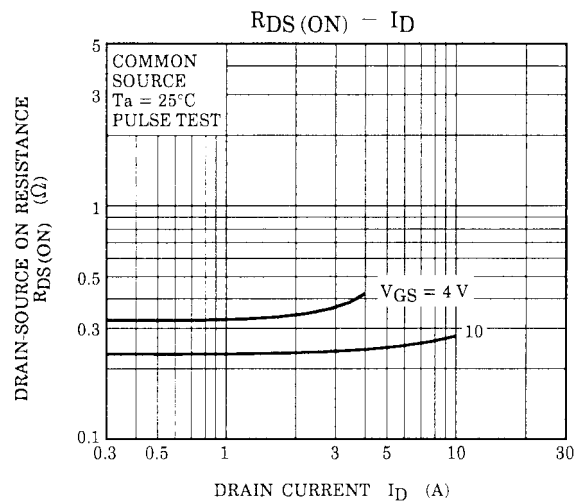
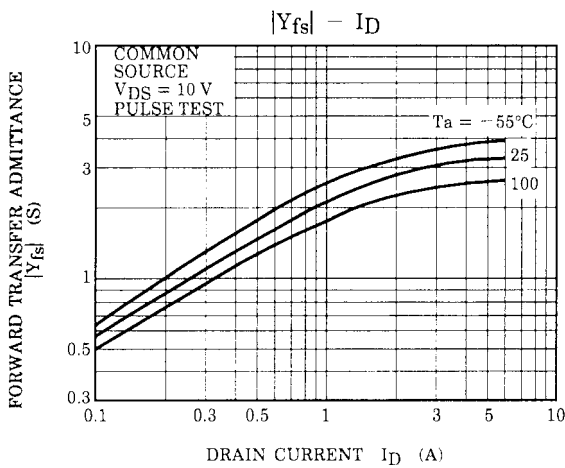
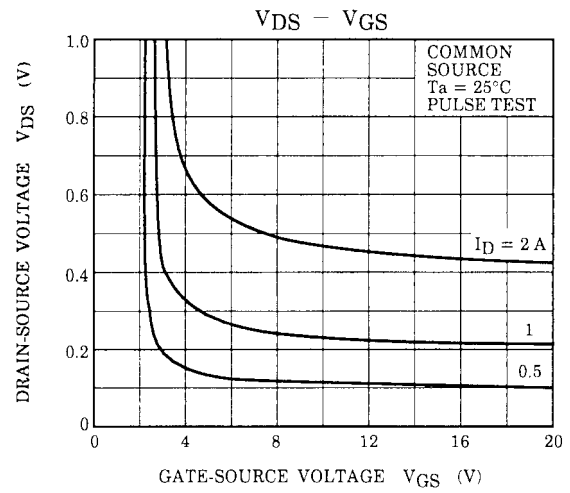
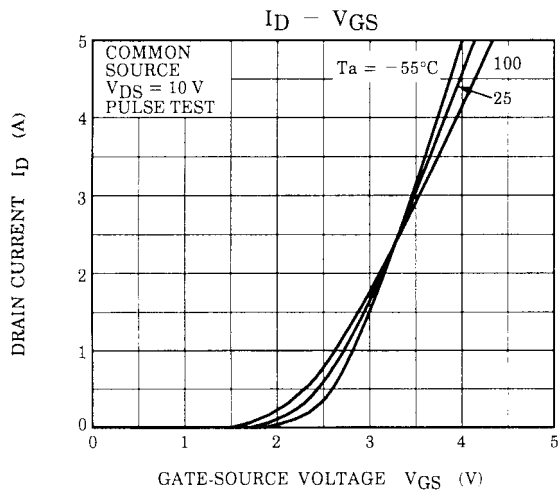
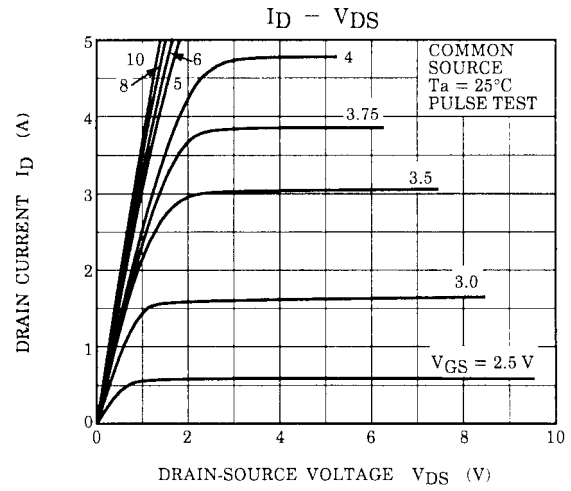
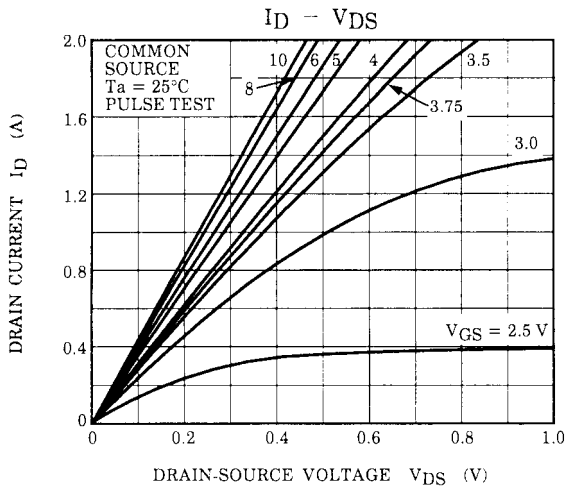
(The two digits represent the part number.)

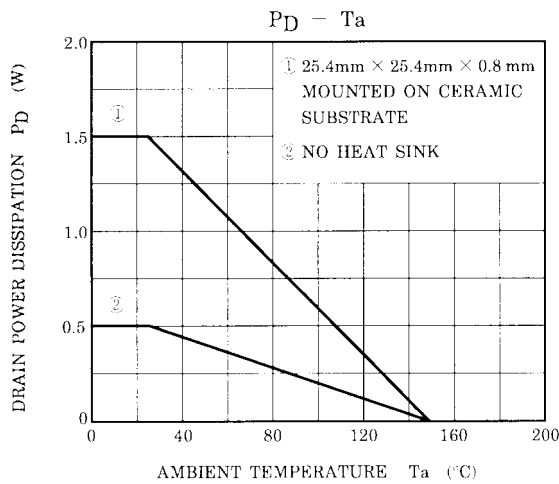
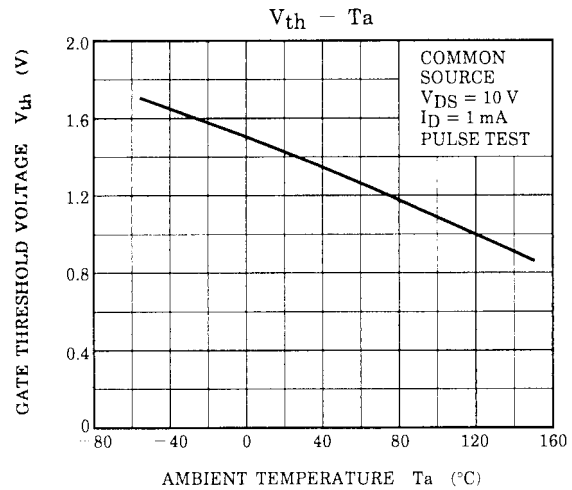
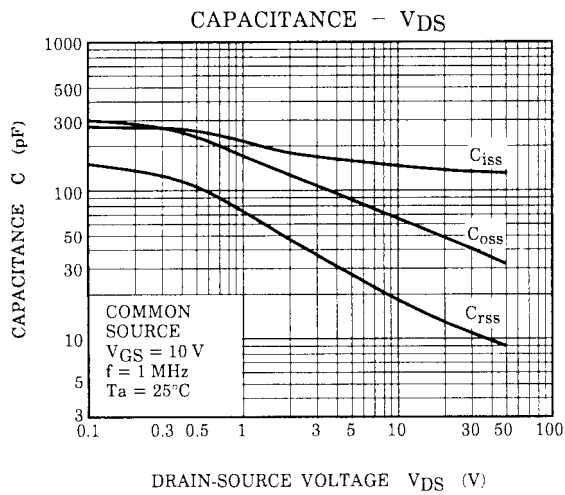
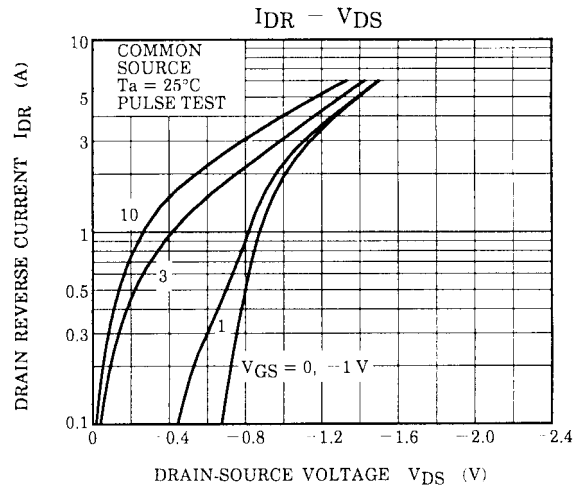
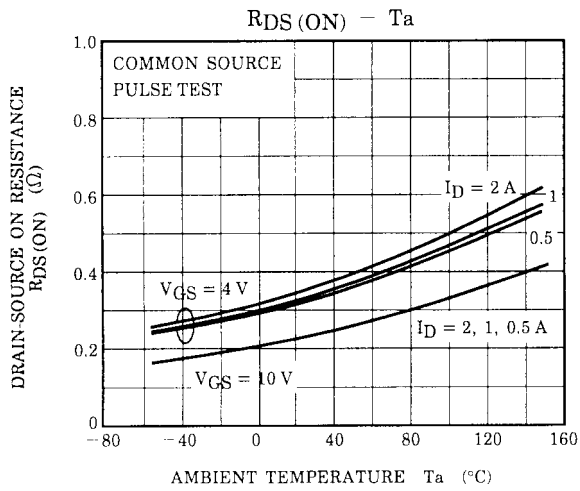
Electrical Characteristics (Ta = 25°C)

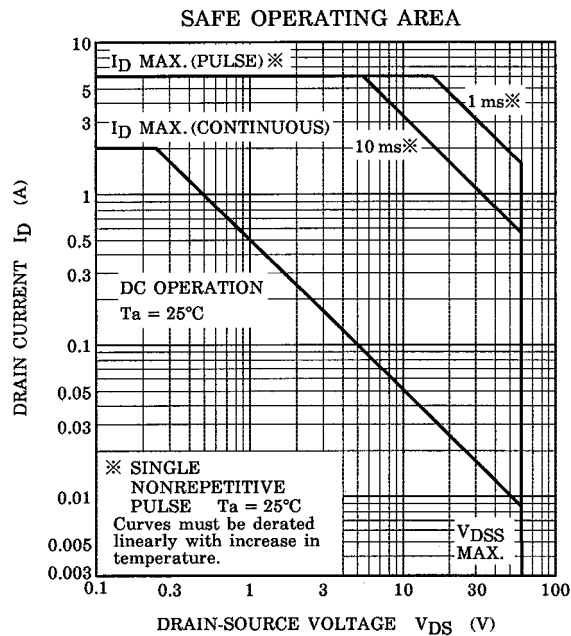
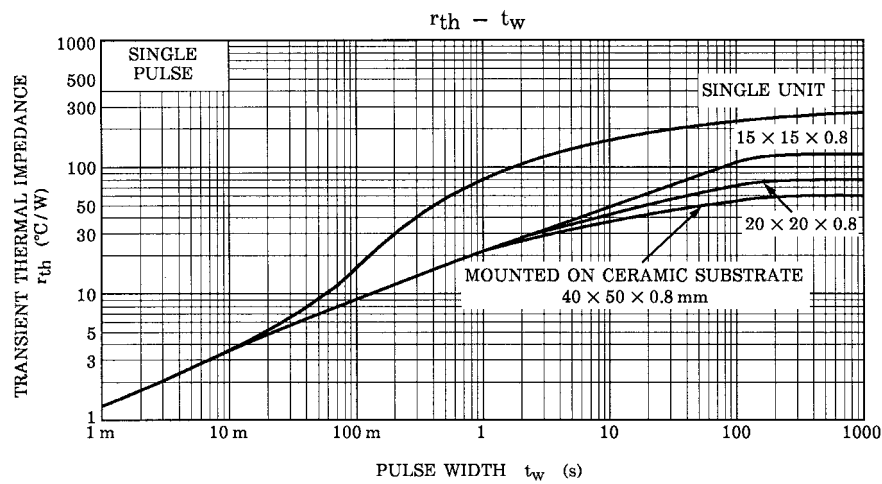
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$	—	—	± 10	μA
Drain cut-off current		I_{DSS}	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$	—	—	100	μA
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = 10 \text{ mA}, V_{GS} = 0 \text{ V}$	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		$R_{DS(ON)}$	$V_{GS} = 4 \text{ V}, I_D = 1 \text{ A}$	—	0.33	0.44	Ω
			$V_{GS} = 10 \text{ V}, I_D = 1 \text{ A}$	—	0.23	0.30	
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ A}$	1.0	2.0	—	S
Input capacitance		C_{iss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$	—	150	—	pF
Reverse transfer capacitance		C_{rss}		—	25	—	
Output capacitance		C_{oss}		—	70	—	
Switching time	Rise time	t_r	 <p>$I_D = 1 \text{ A}$ $V_{GS} = 10 \text{ V}, 0 \text{ V}$ 50Ω $R_L = 30 \Omega$ $V_{DD} \approx 30 \text{ V}$ V_{out} Duty $\leq 1\%$, $t_W = 10 \mu\text{s}$</p>	—	25	—	ns
	Turn-on time	t_{on}		—	30	—	
	Fall time	t_f		—	50	—	
	Turn-off time	t_{off}		—	150	—	
Total gate charge (gate-source plus gate-drain)		Q_g	$V_{DD} \approx 48 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 2 \text{ A}$	—	6.0	—	nC
Gate-source charge		Q_{gs}		—	4.6	—	
Gate-drain ("miller") Charge		Q_{gd}		—	1.4	—	

Source-Drain Ratings and Characteristics (Ta = 25°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}	—	—	—	6	A
Forward voltage (diode)	V_{DSF}	$I_{DR} = 2 \text{ A}, V_{GS} = 0 \text{ V}$	—	—	-1.5	V
Reverse recovery time	t_{rr}	$I_{DR} = 2 \text{ A}, V_{GS} = 0 \text{ V}$	—	100	—	ns
Reverse recovery charge	Q_{rr}	$dI_{DR} / dt = 50 \text{ A} / \mu\text{s}$	—	40	—	nC







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