

2SK1365

Switching Power Supply Applications

- Low drain-source ON resistance : $R_{DS(ON)} = 1.5\ \Omega$ (typ.)
- High forward transfer admittance : $|Y_{fs}| = 4.0\ S$ (typ.)
- Low leakage current : $I_{DSS} = 300\ \mu A$ (max) ($V_{DS} = 800\ V$)
- Enhancement mode : $V_{th} = 1.5\sim 3.5\ V$ ($V_{DS} = 10\ V$, $I_D = 1\ mA$)

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

Characteristics		Symbol	Rating	Unit
Drain-source voltage		V_{DSS}	1000	V
Drain-gate voltage ($R_{GS} = 20\ k\Omega$)		V_{DGR}	1000	V
Gate-source voltage		V_{GSS}	± 20	V
Drain current	DC (Note 1)	I_D	7	A
	Pulse (Note 1)	I_{DP}	21	
Drain power dissipation ($T_c = 25^{\circ}C$)		P_D	90	W
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).

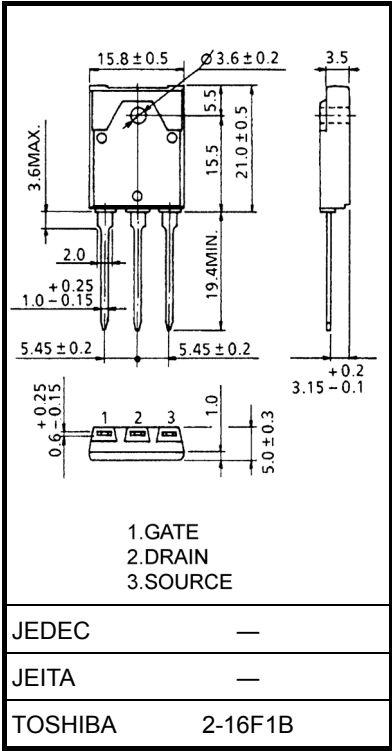
Thermal Characteristics

Characteristics	Symbol	Max	Unit
Thermal resistance, channel to case	$R_{th(ch-c)}$	1.39	$^{\circ}C / W$
Thermal resistance, channel to ambient	$R_{th(ch-a)}$	41.6	$^{\circ}C / W$

Note 1: Ensure that the channel temperature does not exceed $150^{\circ}C$.

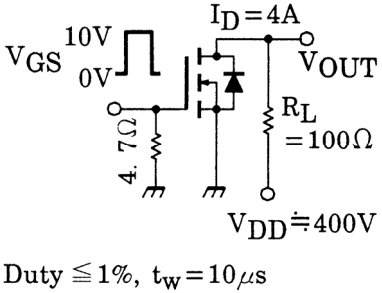
This transistor is an electrostatic-sensitive device.
Please handle with caution.

Unit: mm



Weight: 5.8 g (typ.)

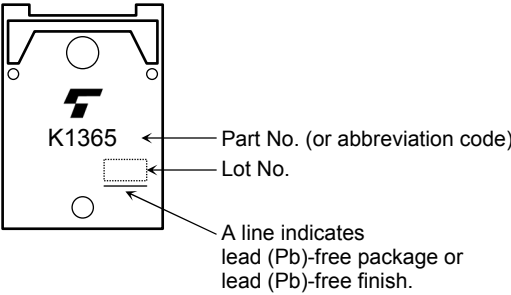
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Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		IGSS	VGS = ±20 V, VDS = 0 V	—	—	±50	nA
Drain cut-off current		IDSS	VDS = 800 V, VGS = 0 V	—	—	300	μA
Drain-source breakdown voltage		V (BR) DSS	ID = 10 mA, VGS = 0 V	1000	—	—	V
Gate threshold voltage		Vth	VDS = 10 V, ID = 1 mA	1.5	—	3.5	V
Drain-source ON resistance		RDS (ON)	ID = 4 A, VGS = 10 V	—	1.5	1.8	Ω
Forward transfer admittance		Yfs	VDS = 20 V, ID = 4 A	2.0	4.0	—	S
Input capacitance		Ciss	VDS = 25 V, VGS = 0 V, f = 1 MHz	—	1300	—	pF
Reverse transfer capacitance		Crss		—	100	—	
Output capacitance		Coss		—	180	—	
Switching time	Rise time	tr		—	25	—	ns
	Turn-on time	ton		—	40	—	
	Fall time	tf		—	20	—	
	Turn-off time	toff		—	100	—	
Total gate charge (Gate-source plus gate-drain)		Qg	VDD ≈ 400 V, VGS = 10 V, ID = 7 A	—	120	—	nC
Gate-source charge		Qgs		—	70	—	
Gate-drain ("miller") charge		Qgd		—	50	—	

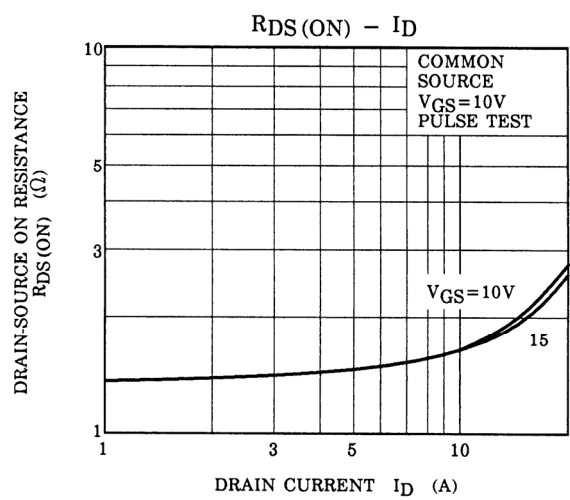
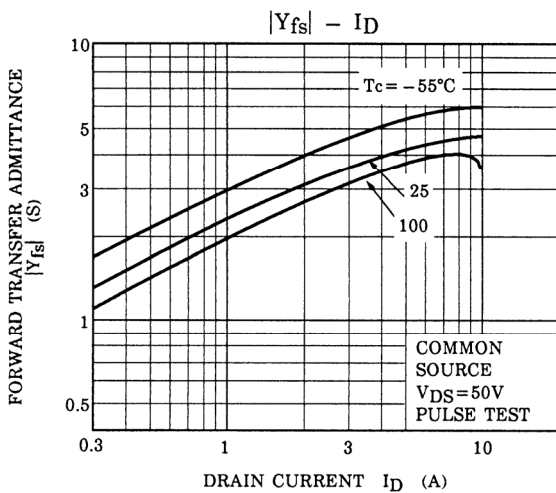
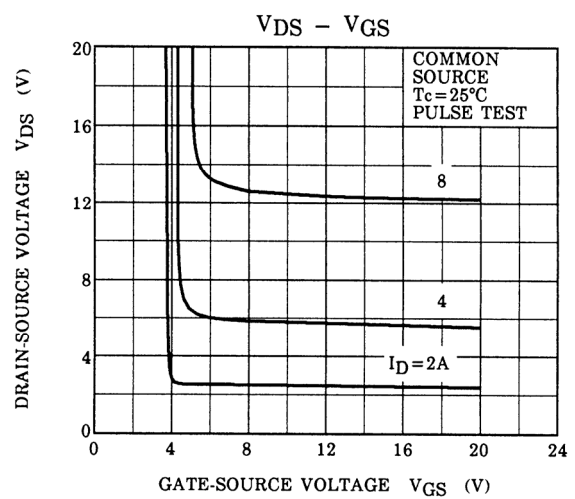
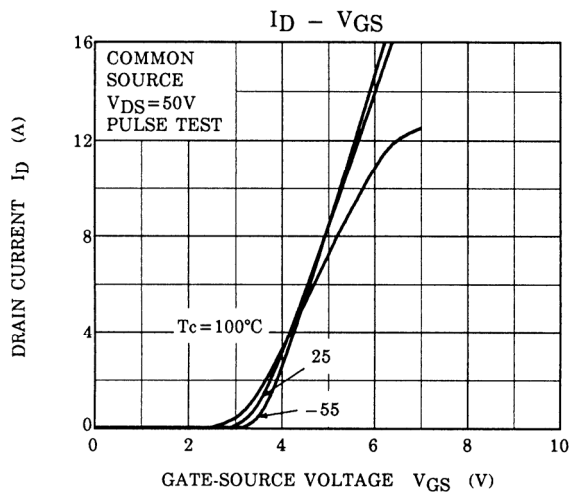
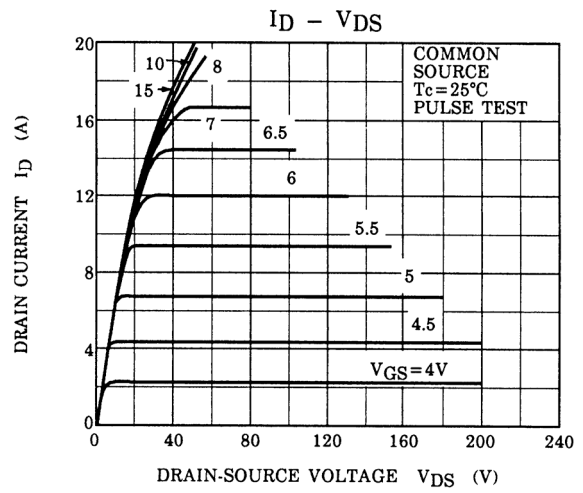
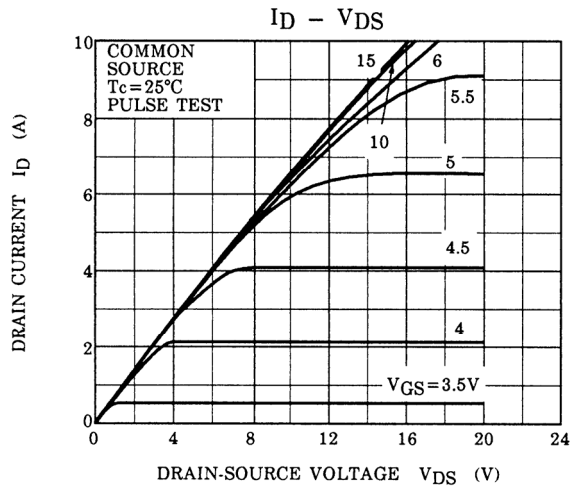
Source-Drain Ratings and Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Continuous drain reverse current (Note 1)	IDR	—	—	—	7	A
Pulse drain reverse current (Note 1)	IDRP	—	—	—	21	A
Forward voltage (diode)	VDSF	IDR = 7 A, VGS = 0 V	—	—	−1.9	V

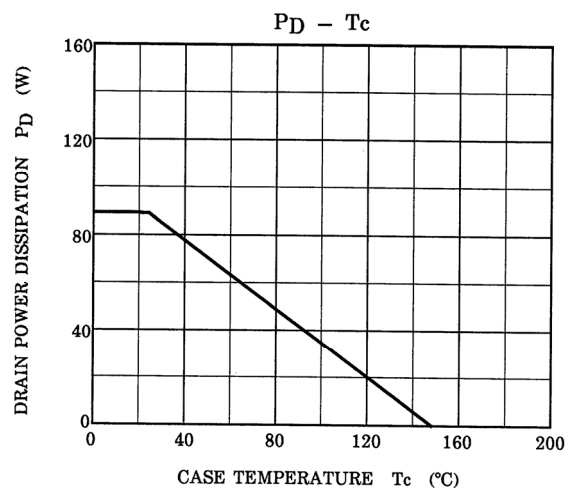
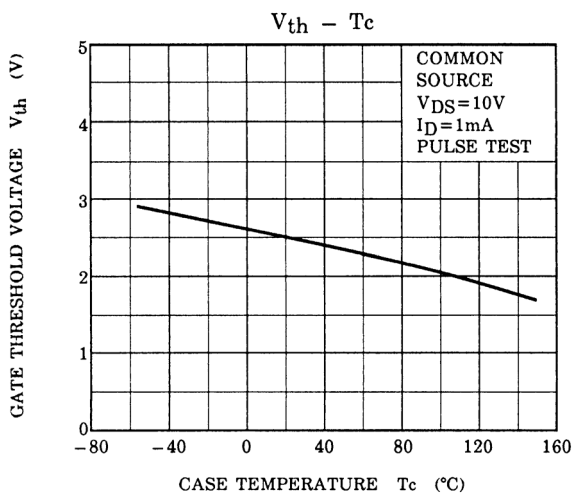
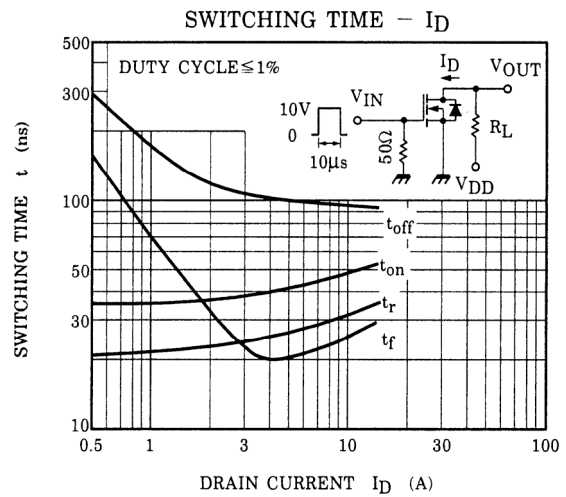
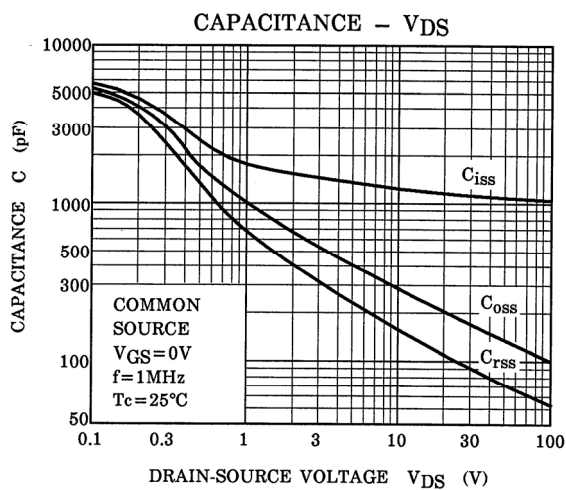
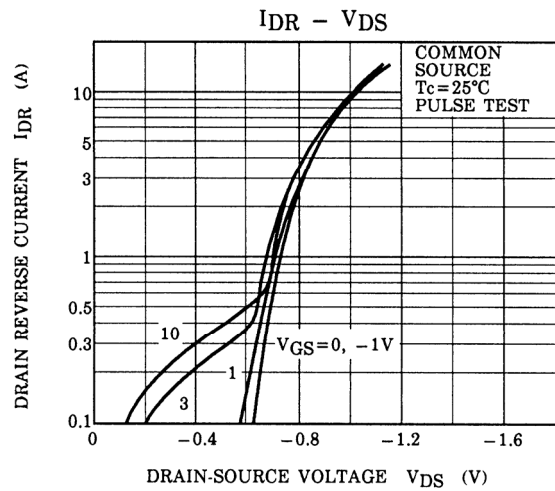
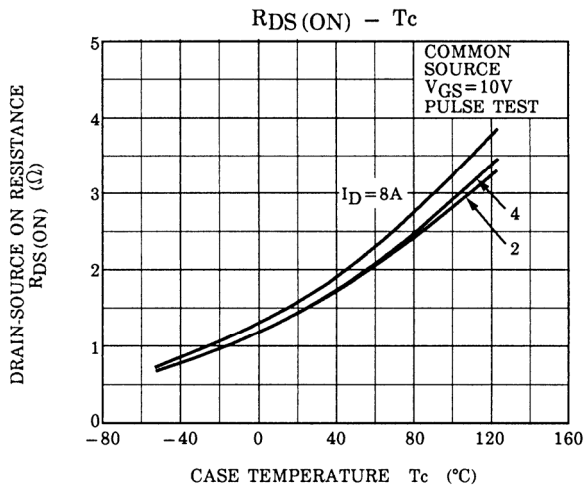
Marking



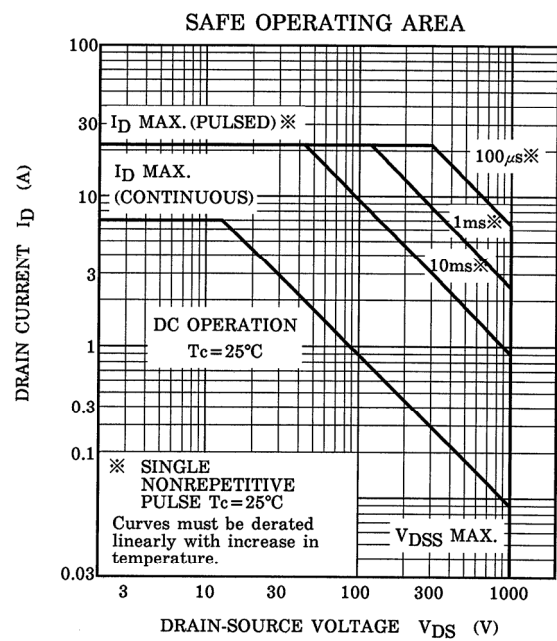
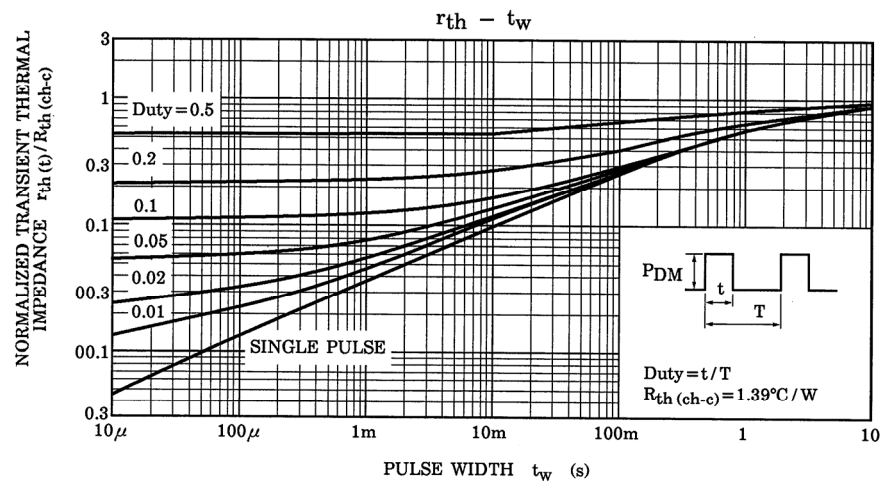
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