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TOSHIBA Field Effect Transistor Silicon N Channel MOS Type (π -MOSII⁻⁵)

2SK1489

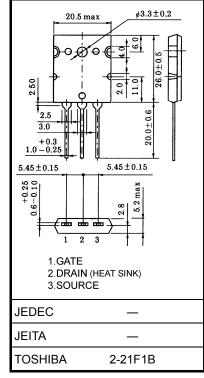
Chopper Regulator Applications

- Low drain-source ON resistance : $R_{DS(ON)} = 0.8 \Omega$ (typ.)
- High forward transfer admittance : |Y_{fs}| = 6.0 S (typ.)

Absolute Maximum Ratings (Ta = 25°C)

- Low leakage current : I_{DSS} = 300 µA (max) (V_{DS} = 800 V)
- Enhancement mode : V_{th} = 1.5 to 3.5 V (V_{DS} = 10 V, I_D = 1 mA)

Characteristics Symbol Unit Rating Drain-source voltage VDSS 1000 V 1000 V Drain-gate voltage (R_{GS} = 20 kΩ) VDGR Gate-source voltage VGSS ±30 V DC (Note 1) I_D 12 Drain current А 36 Pulse (Note 1) IDP Drain power dissipation (Tc = 25°C) P_D 200 W 150 °C Channel temperature T_{ch} T_{stg} Storage temperature range -55 to 150 °C



Weight: 9.75 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).

Thermal Characteristics

Characteristics	Symbol	Max	Unit	
Thermal resistance, channel to case	R _{th (ch−c)}	0.625	°C / W	
Thermal resistance, channel to ambient	R _{th (ch−a)}	35.7	°C / W	

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

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

Unit: mm

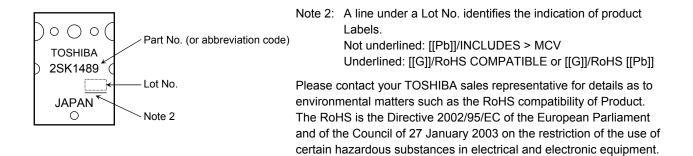
Electrical Characteristics (Ta = 25°C)

Charao	cteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage cu	ırrent	I _{GSS}	V _{GS} = ±25 V, V _{DS} = 0 V		_	±100	nA
Drain cut-off cu	rrent	IDSS	V _{DS} = 800 V, V _{GS} = 0 V		_	300	μA
Drain-source br	eakdown voltage	V (BR) DSS	I _D = 10 mA, V _{GS} = 0 V		_	_	V
Gate threshold	voltage	V _{th}	V _{DS} = 10 V, I _D = 1 mA	1.5	_	3.5	V
Drain-source O	N resistance	R _{DS (ON)}	V _{GS} = 10 V, I _D = 6 A	_	0.8	1.0	Ω
Forward transfe	r admittance	Y _{fs}	V _{DS} = 20 V, I _D = 6 A	4.0	6.0	_	S
Input capacitance	ce	C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz		2000	_	pF
Reverse transfe	r capacitance	C _{rss}			220	_	
Output capacitance		C _{oss}			360	_	
Switching time	Rise time	tr	$V_{GS} \stackrel{10V}{}_{0V} \qquad I_{D} = 6A \\ \downarrow \\ $	_	100	_	- ns
	Turn-on time	t _{on}		-	140	_	
	Fall time	t _f		_	150	_	
	Turn-off time	t _{off}	Duty $\leq 1\%$, t _w = 10 μ s	_	500	_	
Total gate charge (Gate–source plus gate–drain)		Qg		_	110	_	
Gate-source charge		Q _{gs}	V _{DD} ≈ 400 V, V _{GS} = 10 V, I _D = 12 A		50	_	nC
Gate-drain ("miller") charge		Q _{gd}			60	—	

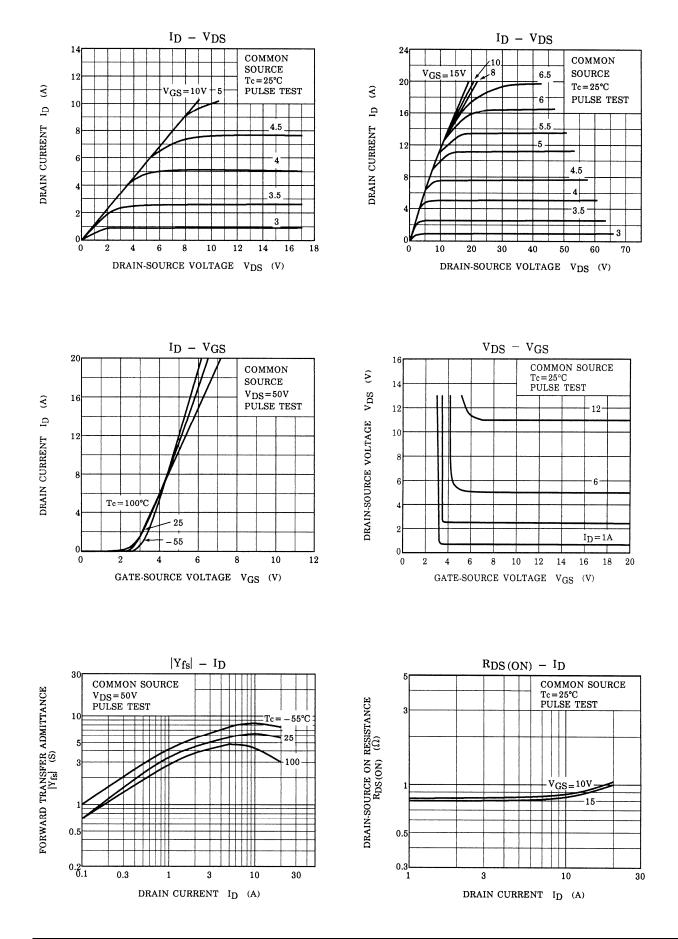
Source-Drain Ratings and Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Continuous drain reverse current (Note 1)	I _{DR}	—	_	_	12	А
Pulse drain reverse current (Note 1)	I _{DRP}	—	_	_	36	А
Forward voltage (diode)	V _{DSF}	I _{DR} = 12 A, V _{GS} = 0 V	_		-1.6	V

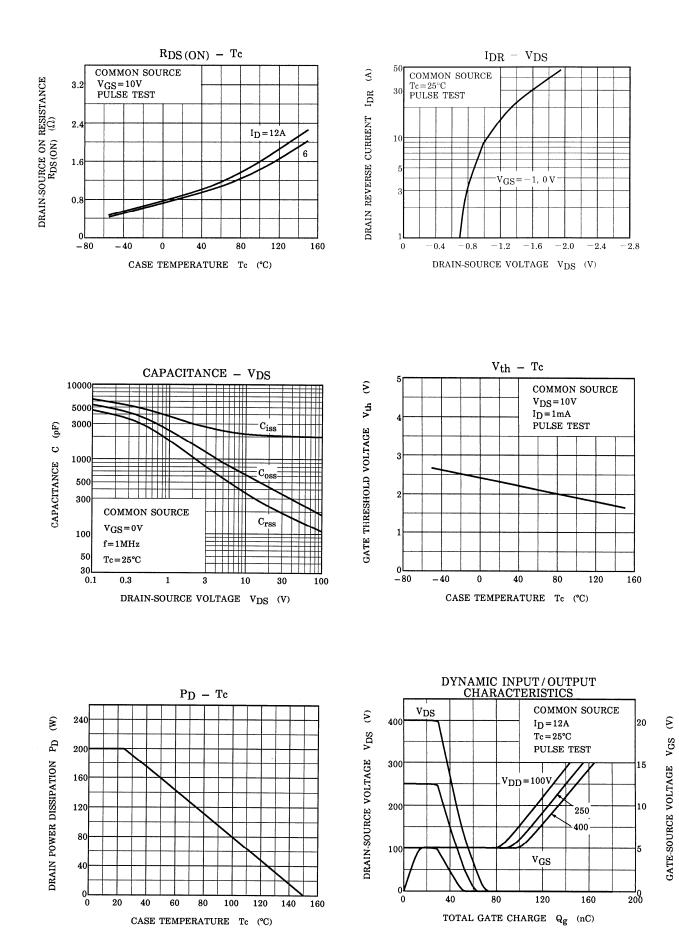
Marking

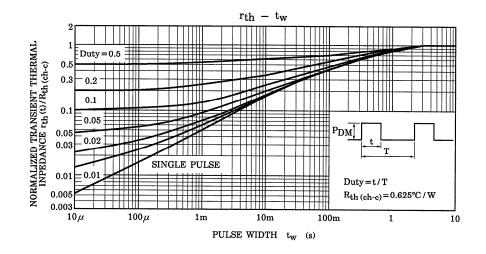


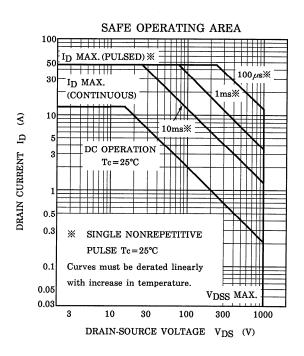
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