TOSHIBA Field Effect Transistor Silicon N Channel MOS Type (π-MOSVI)

2SK3569

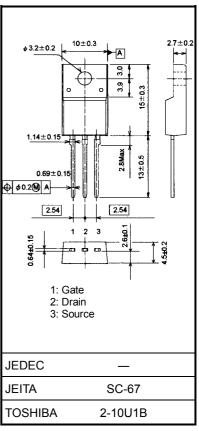
Switching Regulator Applications

Unit: mm

- Low drain-source ON resistance: R_{DS} (ON) = 0.54 (typ.)
- High forward transfer admittance: $|Y_{fs}| = 8.5S$ (typ.)
- Low leakage current: $IDSS = 100 \mu A (VDS = 600 V)$
- Enhancement-mode: $V_{th} = 2.0 \sim 4.0 \text{ V}$ ($V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$)

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	10	А	
	Pulse (t = 1 ms) (Note 1)	I _{DP}	40		
Drain power dissipation (Tc = 25°C)		P _D	45	W	
Single pulse avalanche energy (Note 2)		E _{AS}	363	mJ	
Avalanche current		I _{AR}	10	Α	
Repetitive avalanche energy (Note 3)		E _{AR}	4.5	mJ	
Channel temperature		T _{ch}	150	°C	
Storage temperature range		T _{stg}	-55~150	°C	



Weight: 1.7 g (typ.)

Thermal Characteristics

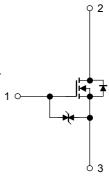
Characteristics	Symbol	Max	Unit
Thermal resistance, channel to case	R _{th (ch-c)}	2.78	°C/W
Thermal resistance, channel to ambient	R _{th (ch-a)}	62.5	°C/W

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

Note 2: $V_{DD} = 90 \text{ V}$, $T_{ch} = 25^{\circ}\text{C}$ (initial), L = 6.36 mH, $I_{AR} = 10 \text{ A}$, $R_G = 25 \Omega$

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

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





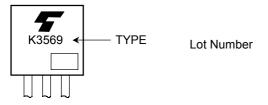
Electrical Characteristics (Ta = 25°C)

Chara	acteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage cui	rrent	I _{GSS}	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0 \text{ V}$	_	_	±10	μΑ
Gate-source breakdown voltage		V (BR) GSS	$I_G = \pm 10 \ \mu A, \ V_{DS} = 0 \ V$	±30	_	_	V
Drain cut-off curr	ent	I _{DSS}	V _{DS} = 600 V, V _{GS} = 0 V	_	_	100	μΑ
Drain-source bre	akdown voltage	V (BR) DSS	I _D = 10 mA, V _{GS} = 0 V	600	_	_	V
Gate threshold v	oltage	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 = 5 A	_	0.54	0.75	Ω
Forward transfer	admittance	Y _{fs}	V _{DS} = 10 V, I _D = 5 A	0.7	8.5	_	S
Input capacitance	e	C _{iss}		_	1500	_	
Reverse transfer capacitance		C _{rss}	$V_{DS} = 25 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$		15		pF
Output capacitance		Coss		_	180	_	
Switching time	Rise time	t _r	$\begin{array}{c c} 10 \text{ V} & \text{I}_D = 5 \text{ A} & \text{V}_{\text{OUT}} \\ V_{\text{GS}} & \text{V} & \text{V}_{\text{DD}} = 200 \text{ V} \end{array}$	_	22	_	
	Turn-on time	t _{on}		_	50	_	
	Fall time	t _f		_	36	_	ns
	Turn-off time	t _{off}	Duty $\le 1\%$, $t_W = 10 \ \mu s$	_	180	_	
Total gate charge		Qg		_	42	_	
Gate-source charge		Q _{gs}	$V_{DD} \simeq 400 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$	_	23	_	nC
Gate-drain charge		Q _{gd}			19		

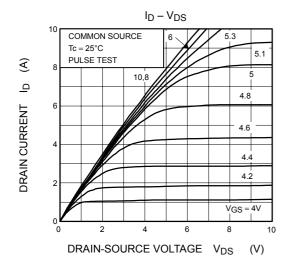
Source-Drain Ratings and Characteristics (Ta = 25°C)

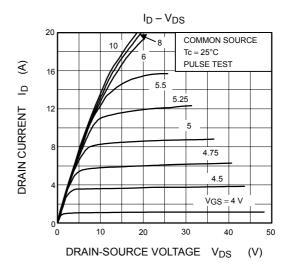
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Continuous drain reverse current (Note 1)	I _{DR}	_	_	_	10	Α
Pulse drain reverse current (Note 1)	I _{DRP}	_	_	_	40	Α
Forward voltage (diode)	V _{DSF}	I _{DR} = 10 A, V _{GS} = 0 V	_	_	-1.7	V
Reverse recovery time	t _{rr}	I _{DR} = 10 A, V _{GS} = 0 V,	_	1300	_	ns
Reverse recovery charge	Q _{rr}	dl _{DR} /dt = 100 A/μs	_	16	_	μС

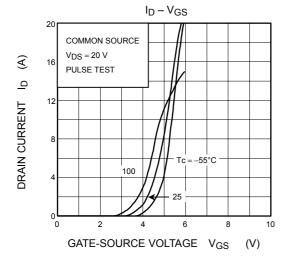
Marking

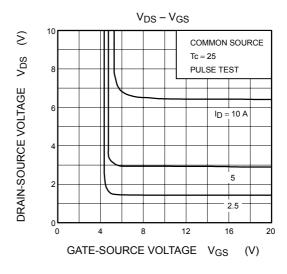


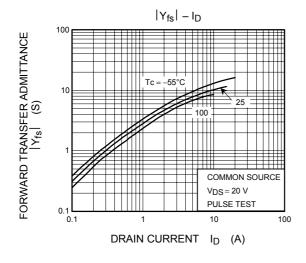
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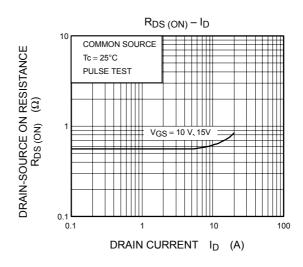


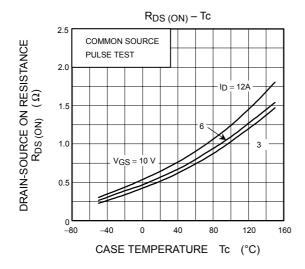


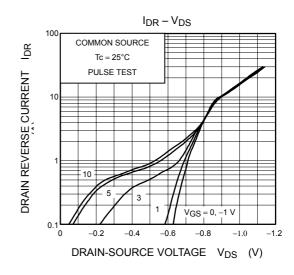


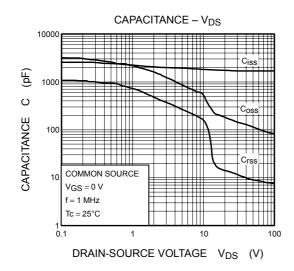


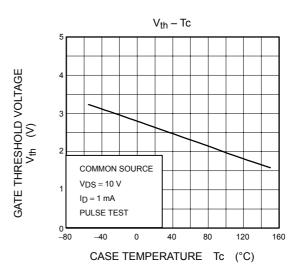


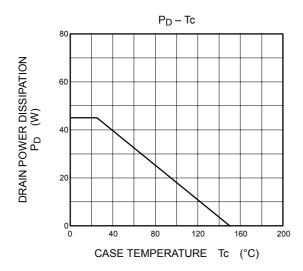


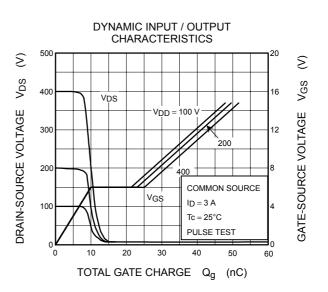




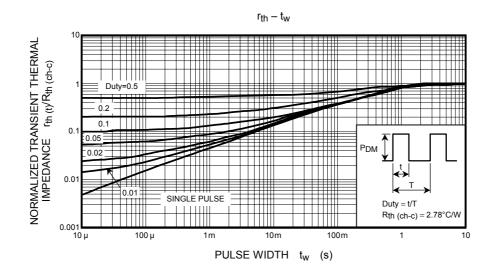


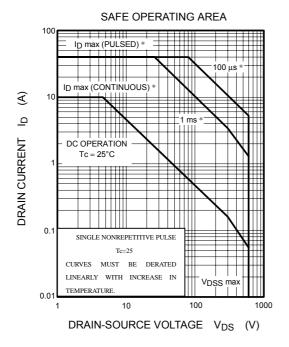


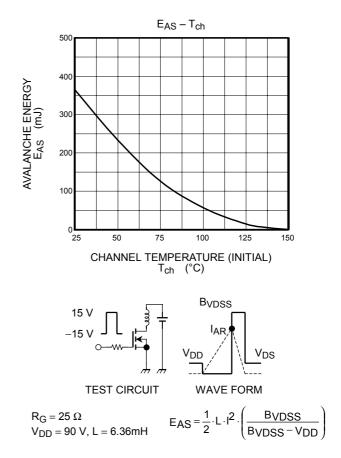




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