TOSHIBA Field Effect Transistor Silicon P Channel MOS Type (L^2 - π -MOSV)

2SJ360

High Speed, High current Switching Applications
Chopper Regulator, DC-DC Converter and Motor Drive
Applications

4-V gate drive

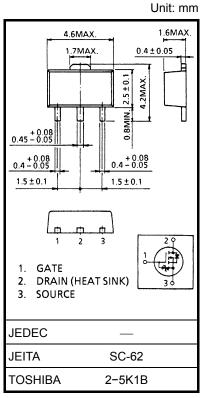
• Low drain-source ON resistance : $R_{DS (ON)} = 0.55 \Omega \text{ (typ.)}$

• High forward transfer admittance : |Yfs| = 0.9 S (typ.)

• Low leakage current : $I_{DSS} = -100 \,\mu\text{A} \,(\text{max}) \,(\text{V}_{DS} = -60 \,\text{V})$ • Enhancement mode : $V_{th} = -0.8 \,\text{to} \, -2.0 \,\text{V} \,(V_{DS} = -10 \,\text{V}, \,I_{D} = -1 \,\text{mA})$

Absolute Maximum Ratings (Ta = 25°C)

Characteris	stics	Symbol	Rating	Unit	
Drain-source voltage		V_{DSS}	-60	V	
Drain-gate voltage (Ro	_{SS} = 20 k Ω)	V_{DGR}	-60	٧	
Gate-source voltage		V_{GSS}	±20	٧	
Drain current	DC (Note 1)	ID	-1	Α	
	Pulse (Note 1)	I_{DP}	-4	Α	
Drain power dissipation	1	P_D	0.5	W	
Drain power dissipation	n (Note 2)	P_D	1.5	W	
Channel temperature		T _{ch}	150	°C	
Storage temperature ra	ange	T _{stg}	-55 to 150	°C	



Weight: 0.05 g (typ.)

- Note 1: Ensure that the channel temperature does not exceed 150°C.
- Note 2: Mounted on a ceramic substrate (25.4 mm × 25.4 mm × 0.8 mm)
- Note 3: 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).

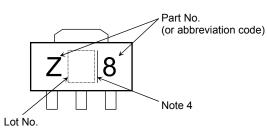
Thermal Characteristics

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

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

2009-09-29

Marking



Note 4: A line to the right of a Lot No. identifies the indication of product Labels.

Without a line: [[Pb]]/INCLUDES > MCV

With a line: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

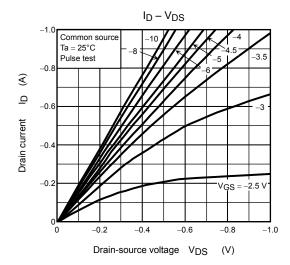
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

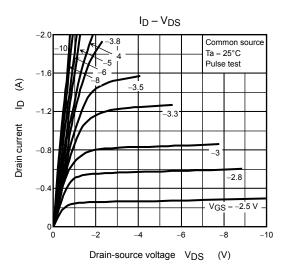
Electrical Characteristics (Ta = 25°C)

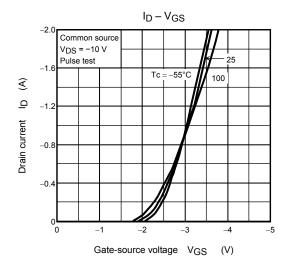
Charac	cteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage cu	urrent	I _{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$	_	_	±10	μА
Drain cut-off cu	rrent	I _{DSS}	$V_{DS} = -60 \text{ V}, V_{GS} = 0 \text{ V}$	_	_	-100	μА
Drain-source br voltage	reakdown	V _(BR) DSS	$I_D = -10 \text{ mA}, V_{GS} = 0 \text{ V}$	-60	_	_	٧
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)}	$V_{GS} = -4 \text{ V}, I_D = -0.5 \text{ A}$	_	0.86	1.2	Ω	
		$V_{GS} = -10 \text{ V}, I_D = -0.5 \text{ A}$	_	0.55	0.73		
Forward transfe	r admittance	Y _{fs}	$V_{DS} = -10 \text{ V}, I_D = -0.5 \text{ A}$	0.5	1.0	_	S
Input capacitano	ce	C _{iss}		_	155	_	
Reverse transfer capacitance Output capacitance		C _{rss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$	_	22	_	pF
		Coss		_	75	_	
Switching time	Rise time	t _r	V_{GS} V_{OUT} V_{OUT} $V_{DD} \approx -30V$ $V_{DD} \approx -30V$	_	17	_	
	Turn-on time	t _{on}			20		ns
	Fall time	t _f			20	l	i lib
	Turn-off time	t _{off}		_	100	_	
Total gate charge (Gate-source plus gate-drain)		Qg	V _{DD} ≈ -48 V, V _{GS} = -10 V,	_	6.5	_	nC
Gate-source charge		Q_{gs}	I _D = -1 A	_	4.5	_	
Gate-drain ("miller") charge		Q_{gd}		_	2.0	_	

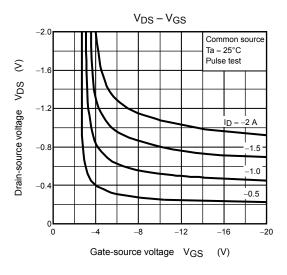
Source-Drain Ratings and Characteristics (Ta = 25°C)

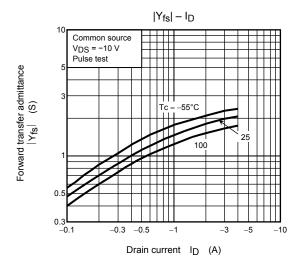
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Continuous drain reverse current (Note 1)	I _{DR}	_	_	_	-1	Α
Pulse drain reverse current (Note 1)	I _{DRP}	_	_	_	-4	Α
Forward voltage (diode)	V_{DSF}	$I_{DR} = -1 \text{ A, } V_{GS} = 0 \text{ V}$	_	_	1.8	٧
Reverse recovery time	t _{rr}	I _{DR} = -1 A, V _{GS} = 0 V		50		ns
Reverse recovery charge	Q _{rr}	dI_{DR} / $dt = 50 \text{ Å}$ / μ s		45		nC

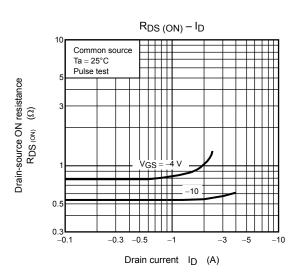


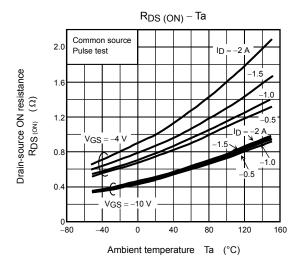


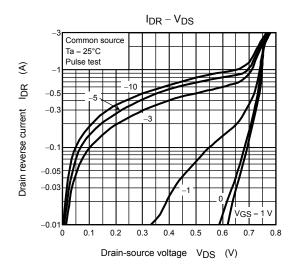


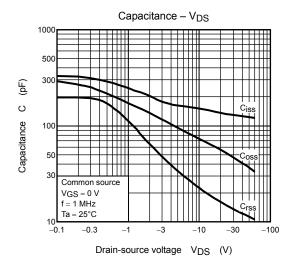


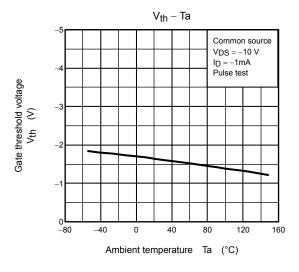


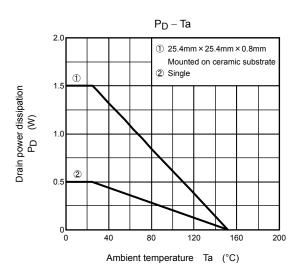




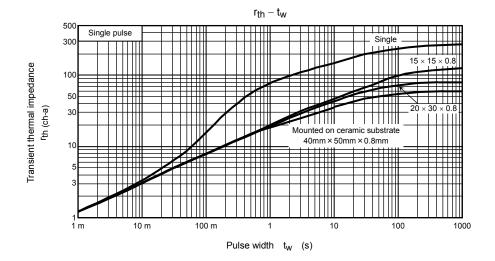


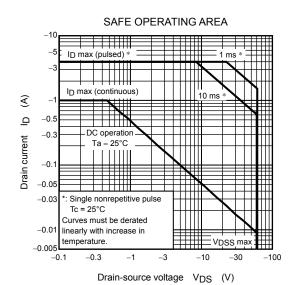






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