TOSHIBA Field Effect Transistor Silicon P Channel MOS Type (L²-π-MOSV)

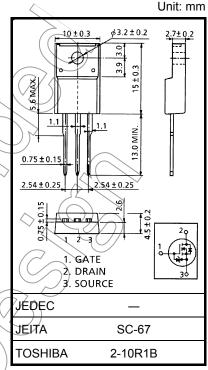
2SJ464

Chopper Regulator, DC-DC Converter and Motor Drive Applications

- 4-V gate drive
- Low drain-source ON resistance: $RDS(ON) = 64 \text{ m}\Omega \text{ (typ.)}$
- High forward transfer admittance: $|Y_{fs}| = 15 \text{ S (typ.)}$
- Low leakage current: $IDSS = -100 \mu A \text{ (max) (VDS} = -100 \text{ V)}$
- 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)

Characteristics		Symbol	Rating	Unit
Drain-source voltage		V _{DSS}	-100	$\bigvee V$
Drain-gate voltage ($R_{GS} = 20 \text{ k}\Omega$)		V_{DGR}	-100	V
Gate-source voltage		V_{GSS}	±20	\diamond v
Drain current	DC (Note 1)	I _D	_18	Α
	Pulse (Note 1)	I _{DP}	-72	A
Drain power dissipation	n (Tc = 25°C)	PD	45	/ (w
Single pulse avalanche	e energy (Note 2)	E _A \$	937	m3
Avalanche current		IAR	-18	_ A
Repetitive avalanche e	nergy (Note 3)	(EAR))	4.5	/mJ
Channel temperature		Tch	150	(°C)
Storage temperature ra	ange	T _{stg}	-55~150	°C



Weight: 1.9 g (typ.)

Note: Using continuously under neavy 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)}	2.78	°C/W
Thermal resistance, channel to ambient	R _{th (ch-a)}	62.5	°C/W

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

Note 2: $V_{DD} = -50~V$, $T_{ch} = 25^{\circ}C$ (initial), L = 3.56~mH, $R_G = 25~\Omega$, $I_{AR} = -18~A$

Note 3: Repetitive rating: pulse width limited by maximum junction temperature

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

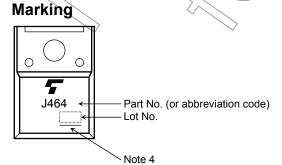
Electrical Characteristics (Ta = 25°C)

Chara	acteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage cur	rent	I _{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$	_	_	±10	μА
Drain cut-off curr	ent	I _{DSS}	V _{DS} = -100 V, V _{GS} = 0 V	_	_	-100	μА
Drain-source bre	akdown voltage	V (BR) DSS	$I_D = -10 \text{ mA}, V_{GS} = 0 \text{ V}$	-100	_	_	V
Gate threshold vo	oltage	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} = -10 V, I _D = -9 A	F	64 85	90 120	mΩ
Forward transfer	admittance	Y _{fs}	$V_{GS} = -4 \text{ V}, I_D = -9 \text{ A}$ $V_{DS} = -10 \text{ V}, I_D = -9 \text{ A}$	7	15	120	S
Input capacitance		C _{iss}	VDS = 10 V, ID = 0 /1		2900	_	pF
Reverse transfer		C _{rss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$	_	480	_	pF
Output capacitan	ce	C _{oss}		_	1000	_	pF
Switching time	Rise time	t _r	0 V (Ip ≠ 29 A	- (25	<i> </i>	
	Turn-on time	t _{on}	V _{GS} V _{OUT}	7	45) _	
	Fall time	t _f	V _{DD} ≈ -50 V		25	_	ns ns
	Turn-off time	t _{off}	Duty ≥ 1%, t _w = 10 μs) —	170	_	
Total gate charge (gate-source plus		Qg		_	140	_	nC
Gate-source cha	rge	Qgs	$V_{DD} \simeq -80 \text{ V}, V_{GS} = -10 \text{ V}, I_{D} \neq -18 \text{ A}$	_	90	_	nC
Gate-drain ("mille	er") charge	Q _{gd} \		_	50	_	nC

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

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Continuous drain reverse current (Note 1)	IDR	-			-18	Α
Pulse drain reverse current (Note 1)	I _{DRP}				-72	Α
Forward voltage (diode)	VpsF	$I_{DR} = -18 \text{ A}, V_{GS} = 0 \text{ V}$		_	1.7	V
Reverse recovery time	trr	$I_{DR} = -18 \text{ A}, V_{GS} = 0 \text{ V}$	_	220	_	ns
Reverse recovery charge	Qrr	$dI_{DR}/dt = 50 \ A/\mu s$	_	0.97	_	μС

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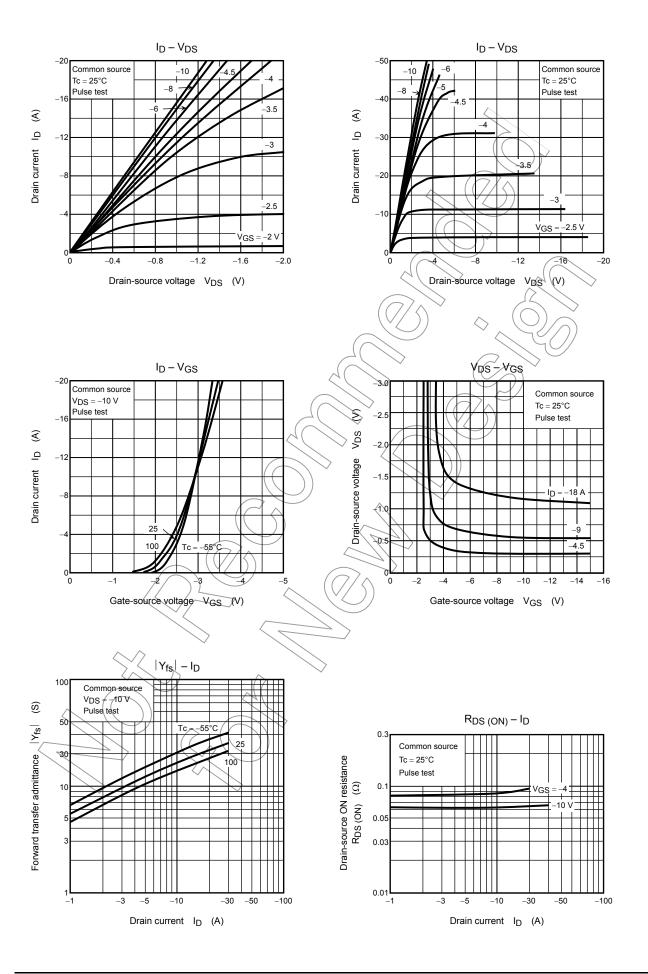


Note 4: A line under a Lot No. identifies the indication of product Labels.

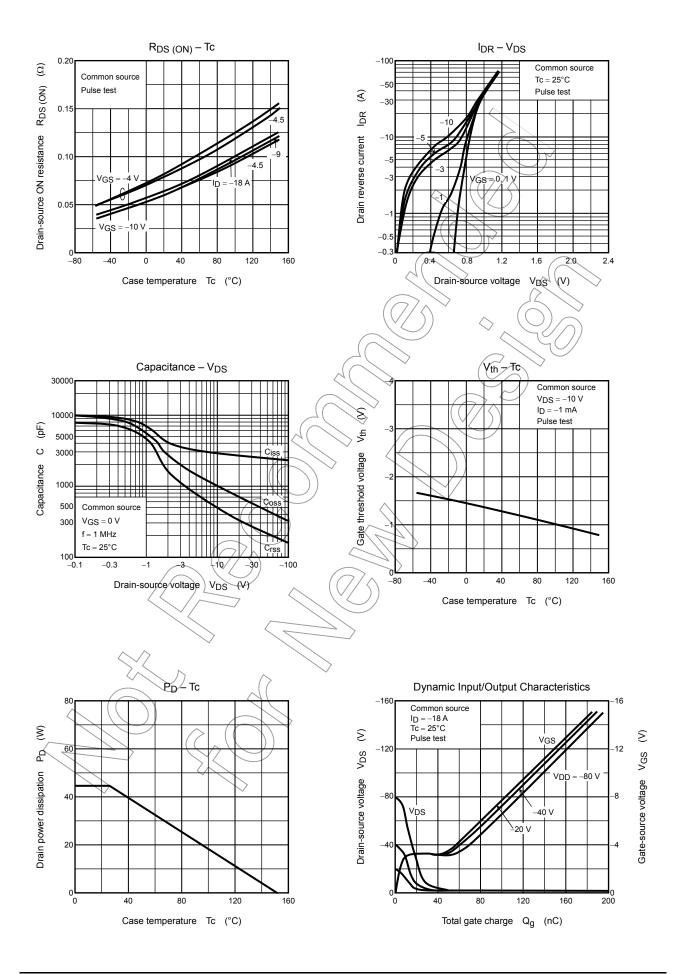
Not underlined: [[Pb]]/INCLUDES > MCV

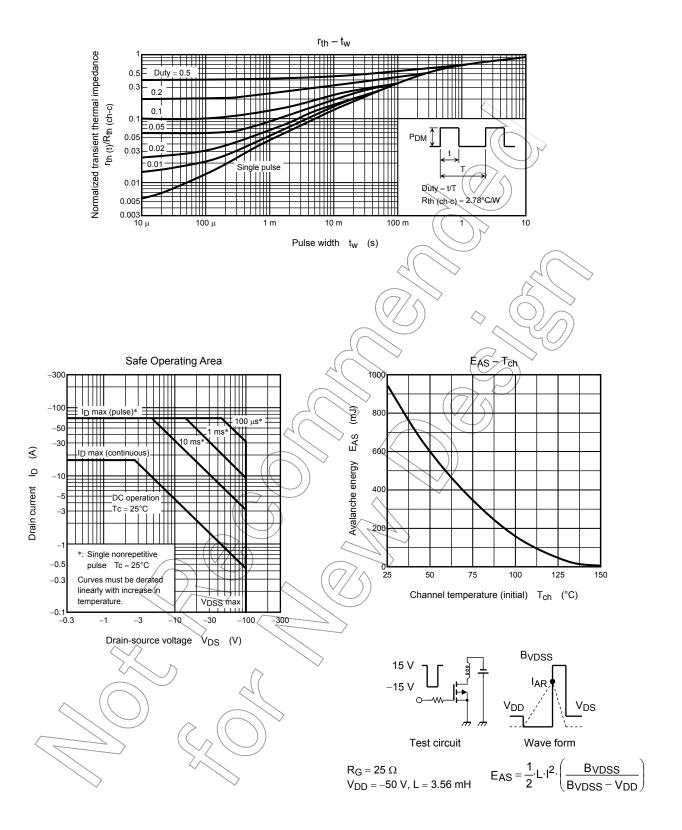
Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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.



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