

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

2SJ567

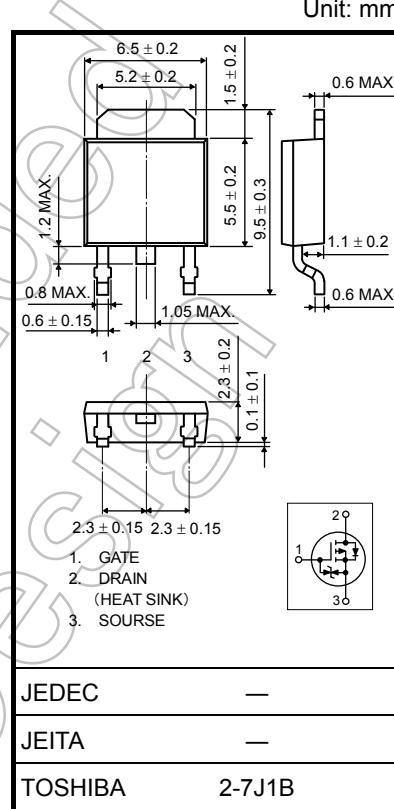
Switching Applications

Chopper Regulator, DC/DC Converter and Motor Drive Applications

- Low drain-source ON-resistance: $R_{DS(ON)} = 1.6 \Omega$ (typ.)
- High forward transfer admittance: $|Y_{fs}| = 2.0 \text{ S}$ (typ.)
- Low leakage current: $I_{DSS} = -100 \mu\text{A}$ (max) ($V_{DS} = -200 \text{ V}$)
- Enhancement model: $V_{th} = -1.5$ to -3.5 V ($V_{DS} = -10 \text{ V}$, $I_D = -1 \text{ mA}$)

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

Characteristic	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	-200	V
Drain-gate voltage ($R_{GS} = 20 \text{ k}\Omega$)	V_{DGR}	-200	V
Gate-source voltage	V_{GSS}	± 20	V
Drain current	DC (Note 1)	I_D	A
	Pulse (Note 1)	I_{DP}	
Drain power dissipation ($T_c = 25^\circ\text{C}$)	P_D	20	W
Single-pulse avalanche energy (Note 2)	E_{AS}	97.5	mJ
Avalanche current	I_{AR}	-2.5	A
Repetitive avalanche energy (Note 3)	E_{AR}	2.0	mJ
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$



Weight: 0.36 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

Characteristic	Symbol	Max	Unit
Thermal resistance, channel to case	$R_{th}(\text{ch-c})$	6.25	$^\circ\text{C/W}$
Thermal resistance, channel to ambient	$R_{th}(\text{ch-a})$	125	$^\circ\text{C/W}$

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

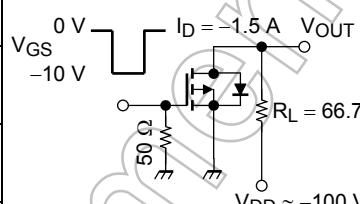
Note 2: $V_{DD} = -50 \text{ V}$, $T_{ch} = 25^\circ\text{C}$ (initial), $L = -25.2 \text{ mH}$, $I_{AR} = -2.5 \text{ A}$, $R_G = 25 \Omega$

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

This transistor is an electrostatic-sensitive device. Handle with care.

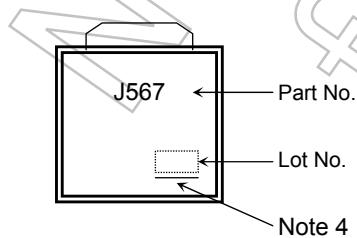
Electrical Characteristics ($T_a = 25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I_{GSS}	$V_{GS} = \pm 16 V, V_{DS} = 0 V$	—	—	± 10	μA
Drain cutoff current	I_{DSS}	$V_{DS} = -200 V, V_{GS} = 0 V$	—	—	-100	μA
Drain-source breakdown voltage	$V_{(BR) DSS}$	$I_D = -10 mA, V_{GS} = 0 V$	-200	—	—	V
Gate threshold voltage	V_{th}	$V_{DS} = -10 V, I_D = -1 mA$	-1.5	—	-3.5	V
Drain-source ON-resistance	$R_{DS} (\text{ON})$	$V_{GS} = -10 V, I_D = -1.5 A$	—	1.6	2.0	Ω
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10 V, I_D = -1.5 A$	1.0	2.0	—	S
Input capacitance	C_{iss}	$V_{DS} = -10 V, V_{GS} = 0 V, f = 1 \text{ MHz}$	—	410	—	pF
Reverse transfer capacitance	C_{rss}		—	40	—	
Output capacitance	C_{oss}		—	145	—	
Switching time	Rise time	t_r	—	20	—	ns
	Turn-on time	t_{on}	—	45	—	
	Fall time	t_f	—	15	—	
	Turn-off time	t_{off}	—	85	—	
Total gate charge (Gate source plus gate-drain)	Q_g	$V_{DD} \approx -160 V, V_{GS} = -10 V, I_D = -2.5 A$	—	10	—	nC
Gate-source charge	Q_{gs}		—	6	—	
Gate-drain ("Miller") charge	Q_{gd}		—	4	—	

Source-Drain Ratings and Characteristics ($T_a = 25^\circ C$)

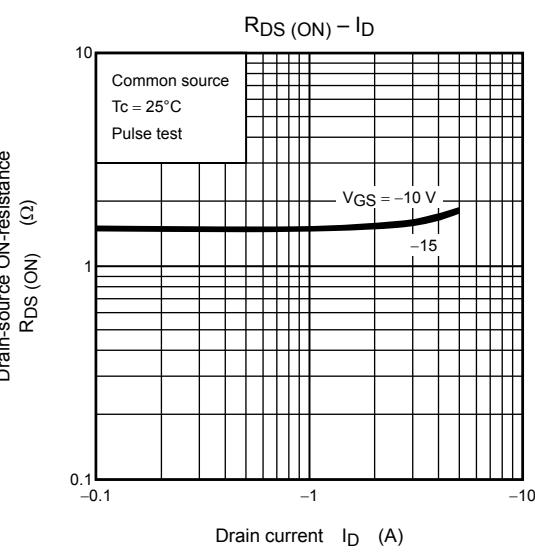
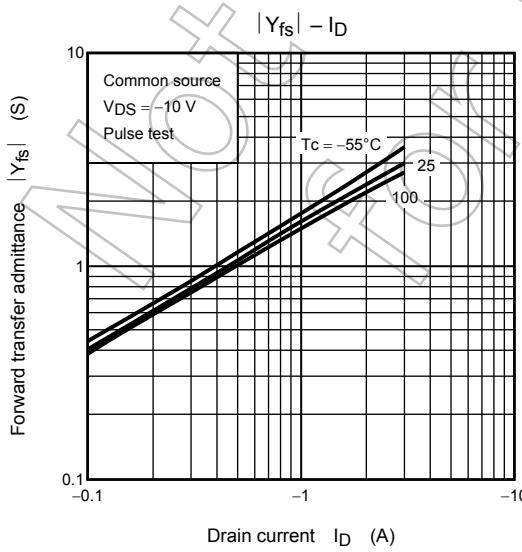
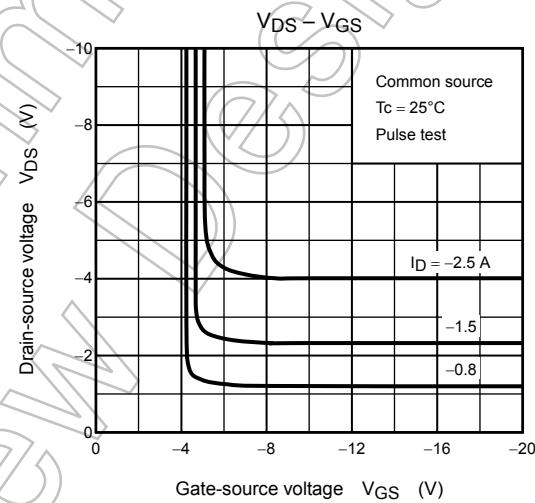
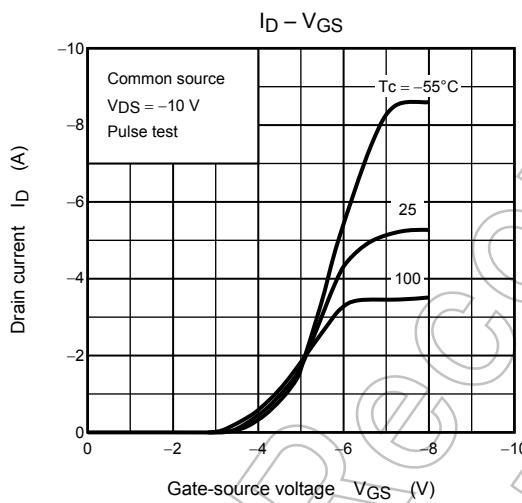
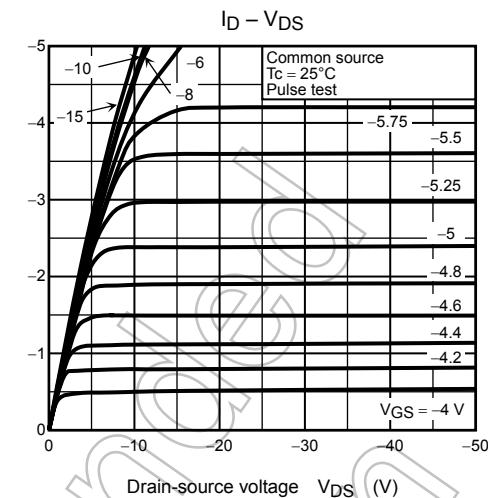
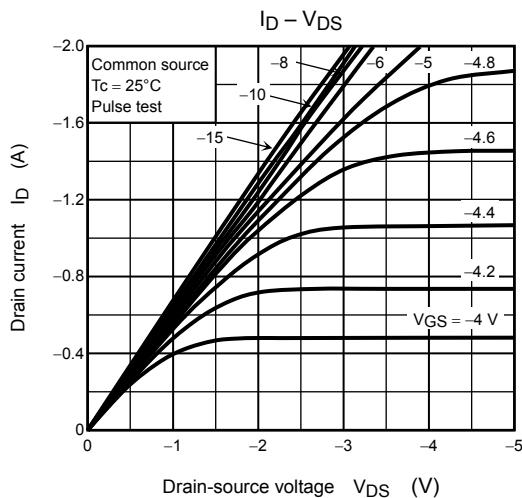
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Continuous drain reverse current (Note 1)	I_{DR}	—	—	—	-2.5	A
Pulse drain reverse current (Note 1)	I_{DRP}	—	—	—	-10	A
Forward voltage (diode)	V_{DSF}	$I_{DR} = -2.5 A, V_{GS} = 0 V$	—	—	2.0	V
Reverse recovery time	t_{rr}	$I_{DR} = -2.5 A, V_{GS} = 0 V,$ $dI_{DR}/dt = 100 A/\mu s$	—	135	—	ns
Reverse recovery charge	Q_{rr}	—	0.81	—	—	μC

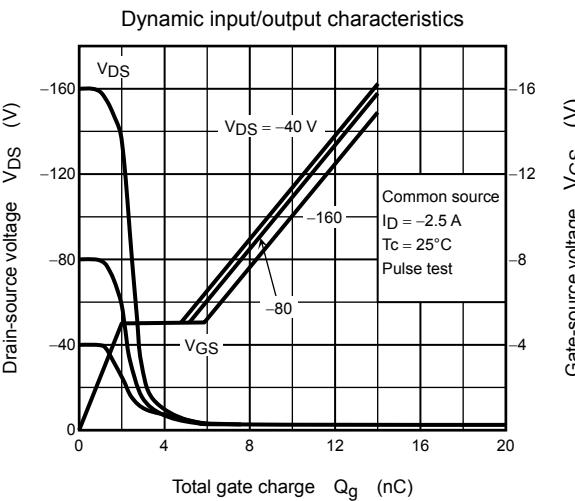
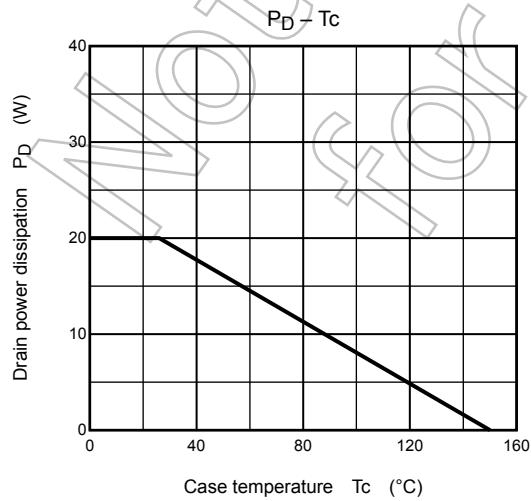
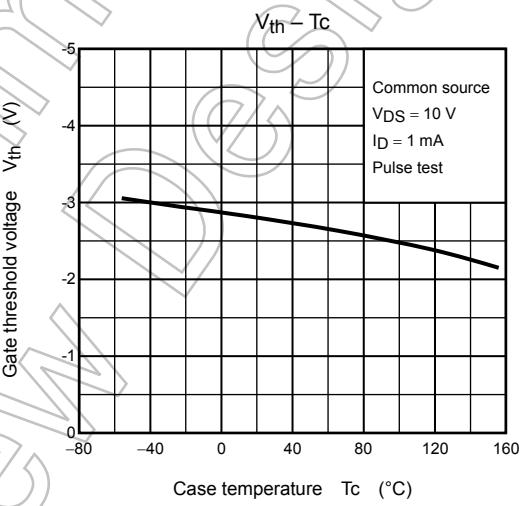
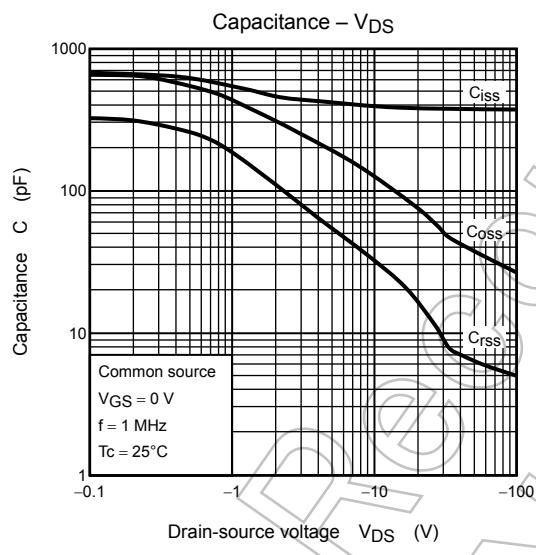
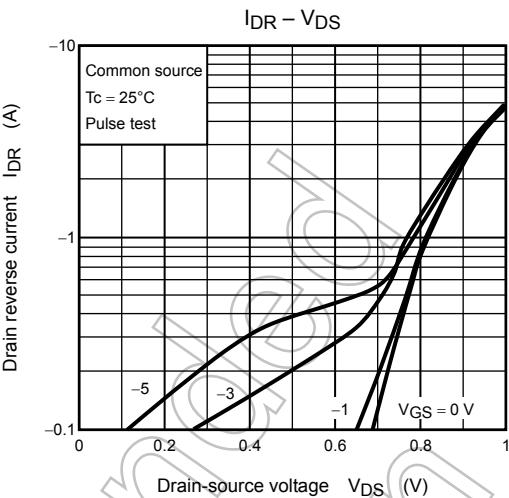
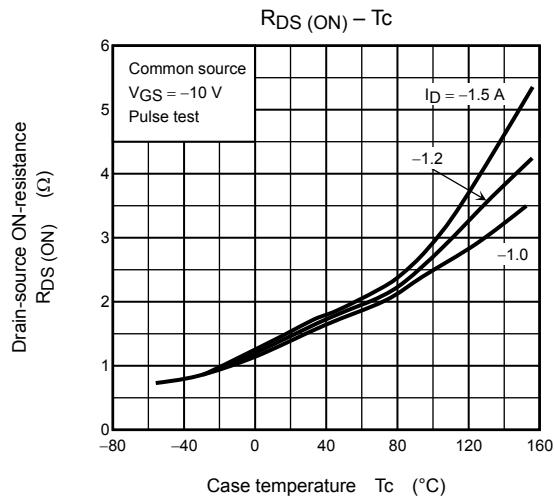
Marking

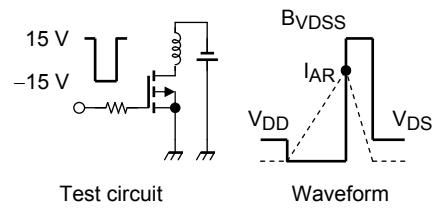
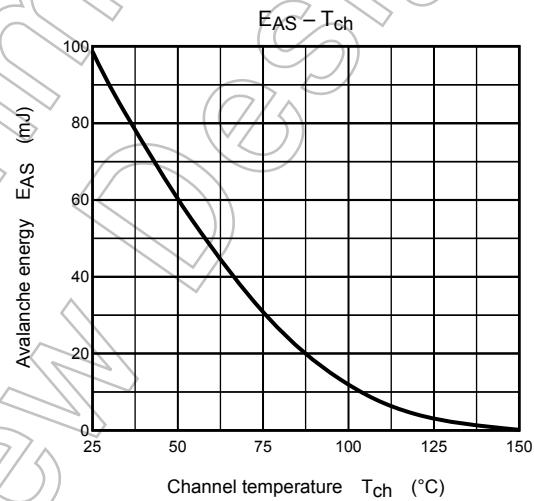
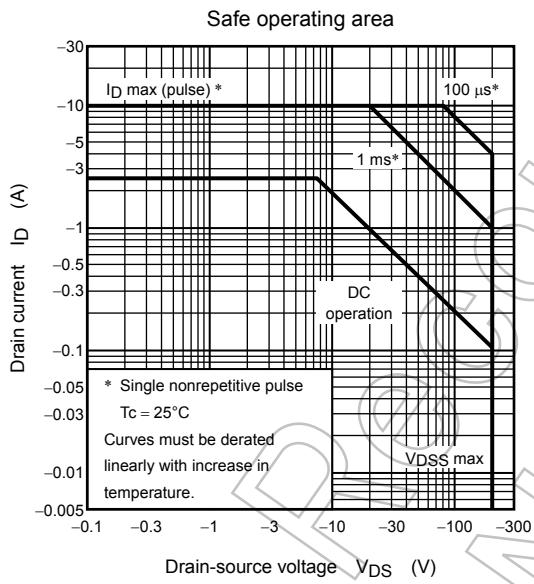
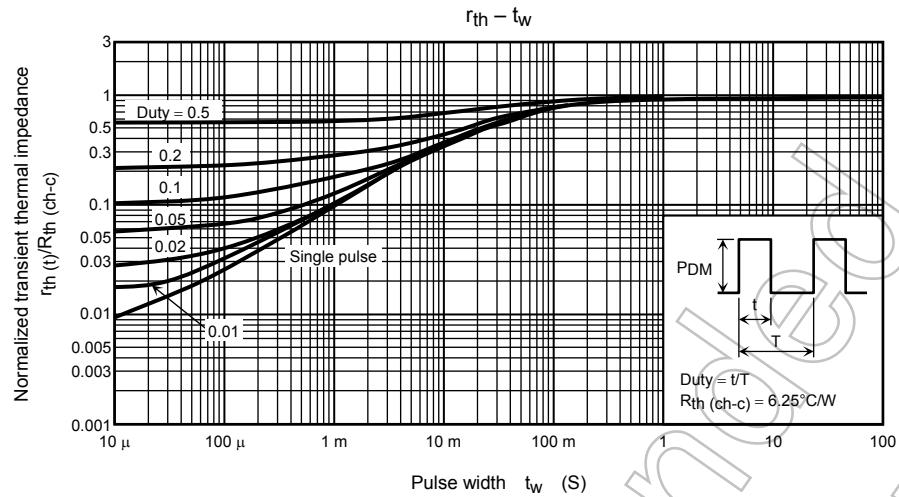


Note 4: A line under a Lot No. identifies the indication of product Labels [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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