Schottky Barrier Diode

CUS04

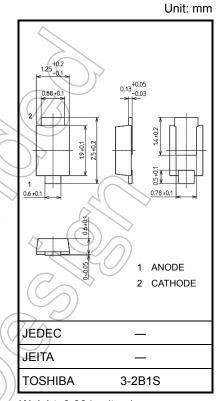
Secondary Rectification in Switching Regulators Reverse-Current Protection in Mobile Devices

- Repetitive peak reverse voltage : V_{RRM} = 60 V
- Average forward current : IF (AV) = 0.7 A
- Peak forward voltage : $V_{FM} = 0.58 \text{ V} @I_F = 0.7 \text{ A}$
- Suitable for high-density board assembly due to the use of a small Toshiba Nickname: US-FLATTM

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Repetitive peak reverse voltage	V _{RRM}	60	$\sqrt{\sqrt{2}}$
Average forward current	lf (AV)	0.7 (Note 1)	A
Non-repetitive peak forward surge current	IFSM	20 (50 Hz)	A
Junction temperature	Тј	-40 to 150	°C
Storage temperature range	T _{stg}	-40 to 150	°C

Note 1: Ta = 27°C Device mounted on a glass-epoxy board Board size : $50 \text{ mm} \times 50 \text{ mm}$ Soldering land size : $6 \text{ mm} \times 6 \text{ mm}$ Board thickness : 1.6 mmRectangular waveform : $\alpha = 180^\circ$, V_R = 30 V



Weight: 0.004 g (typ.)

Note 2: 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).

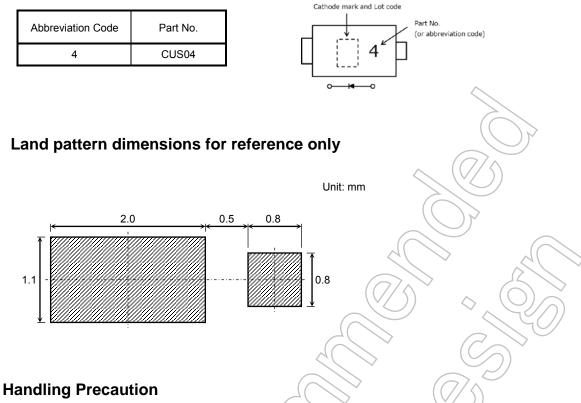
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit	
Peak forward voltage	VFM (1)	I _{FM} = 0.1 A (pulse test)	_	0.40	_	v	
	VFM (2)	I _{FM} = 0.7 A (pulse test)		0.55	0.58		
Repetitive peak reverse current	IRRM (1)	V _{RRM} = 5 V (pulse test)		0.3		μA	
	IRRM (2)	V _{RRM} = 60 V (pulse test)		3.0	100	μΑ	
Junction capacitance	Cj	V _R = 10 V, f = 1.0 MHz		38		pF	
Thermal resistance (junction to ambient)	R _{th} (j-a)	$\begin{array}{llllllllllllllllllllllllllllllllllll$	_	_	75	°C/W	
		$\begin{array}{llllllllllllllllllllllllllllllllllll$	_	_	150		
Thermal resistance (junction to lead)	Rth (j-ł)	—		_	30	°C/W	

Start of commercial production 2003-11

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Marking

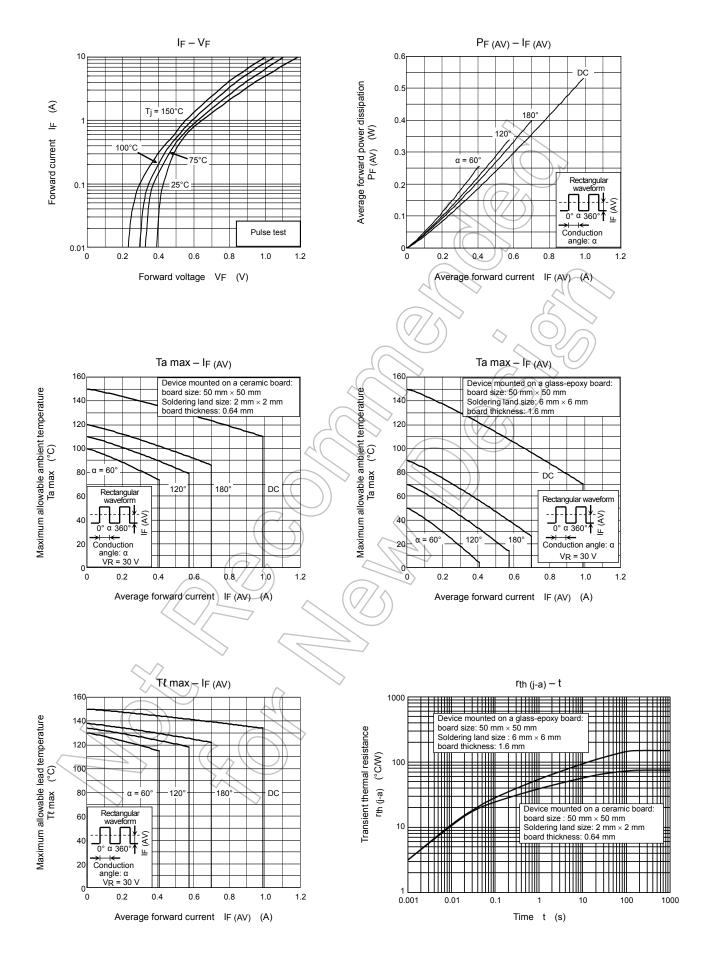


- Schottky barrier diodes have reverse current characteristics compared to other diodes. There is a possibility SBD may cause thermal runaway when it is used under high temperature or high voltage. Please take forward and reverse loss into consideration during design.
- 2) The absolute maximum ratings denote the absolute maximum ratings, which are rated values and must not be exceeded during operation, even for an instant. The following are the general derating methods that we recommend for designing a circuit using this device.
 - VRRM: Use this rating with reference to (1) above. VRRM has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.
 - IF (AV): We recommend that the worst-case current be no greater than 80% of the absolute maximum rating of IF (AV) and T₁ be below 120°C. When using this device, take the margin into consideration by using an allowable Ta max-IF (AV) curve.
 - IFSM: This rating specifies the non-repetitive peak current. This is only applied for an abnormal operation, which seldom occurs during the lifespan of the device.

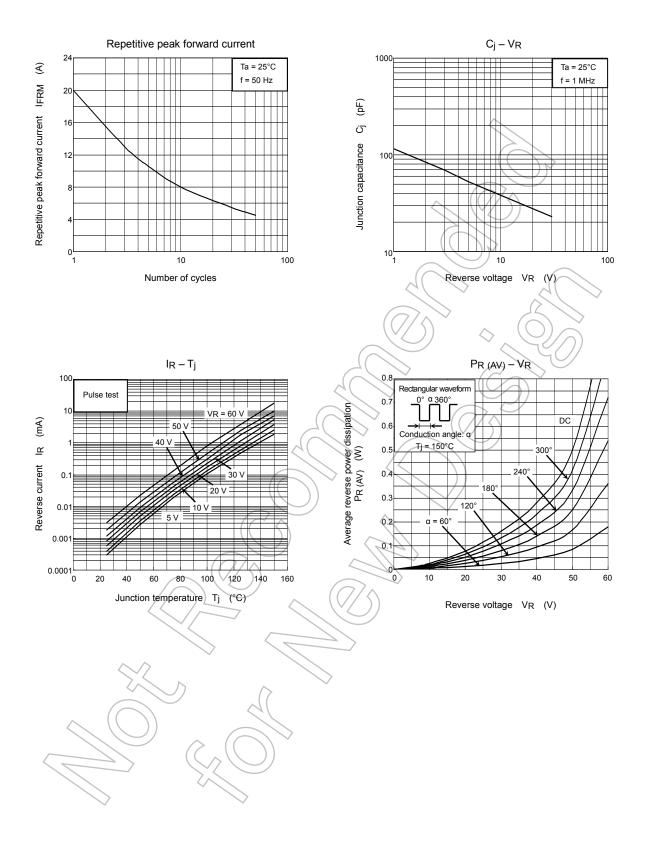
: Derate this rating when using a device to ensure high reliability. We recommend that the device be used at Tj below 120°C.

- 3) Thermal resistance between junction and ambient fluctuates depending on the device's mounting condition. When using a device, design a circuit board and a soldering land size to match the appropriate thermal resistance value.
- 4) For other design considerations, see the Toshiba website.

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