

TOSHIBA Fast Recovery Diode Silicon Diffused Type

TFR1N, TFR1T

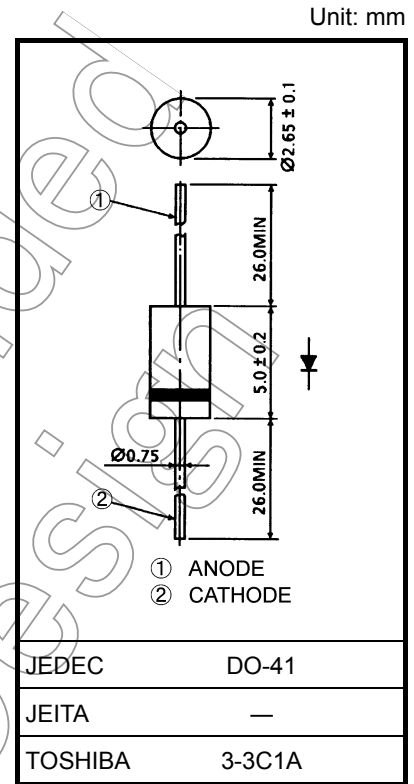
Strobe Applications (Fast Recovery)

- Average forward current: $I_F(AV) = 0.5\text{ A}$
- Repetitive peak reverse voltage: $V_{RRM} = 1000, 1500\text{ V}$
- Reverse recovery time: $t_{rr} = 10\text{ }\mu\text{s}$

Absolute Maximum Ratings

Characteristics		Symbol	Rating	Unit
Repetitive peak reverse voltage	TFR1N	V_{RRM}	1000	V
	TFR1T		1500	
Average forward current		$I_F(AV)$	0.5	A
I^2t limit value (t = 1 to 10 ms)		I^2t	2	A^2s
Peak one cycle surge forward current (non repetitive)		I_{FSM}	20	A
Junction temperature		T_j	-40 to 125	$^{\circ}C$
Storage temperature range		T_{stg}	-40 to 125	$^{\circ}C$

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.).

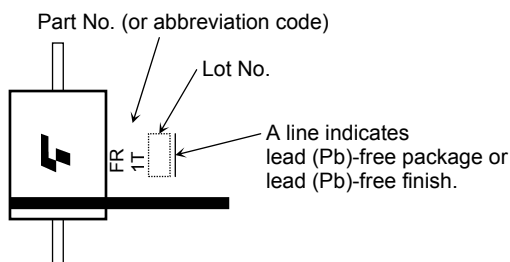


Weight: 0.3 g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Peak forward voltage	V_{FM}	$I_{FM} = 0.5\text{ A}$	—	—	1.3	V
Repetitive peak reverse current	I_{RRM}	$V_{RRM} = \text{Rated}$	—	—	10	μA
Reverse recovery time	t_{rr}	$I_F = 20\text{ mA}, I_R = 1\text{ mA}$	—	—	10	μs

Marking



Abbreviation Code	Part No.
FR1N	TFR1N
FR1T	TFR1T

Handling Precaution

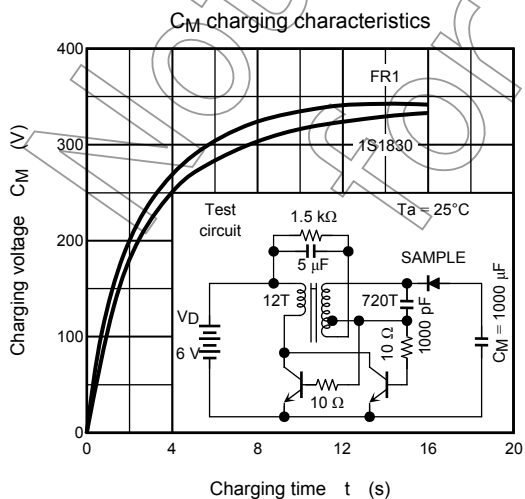
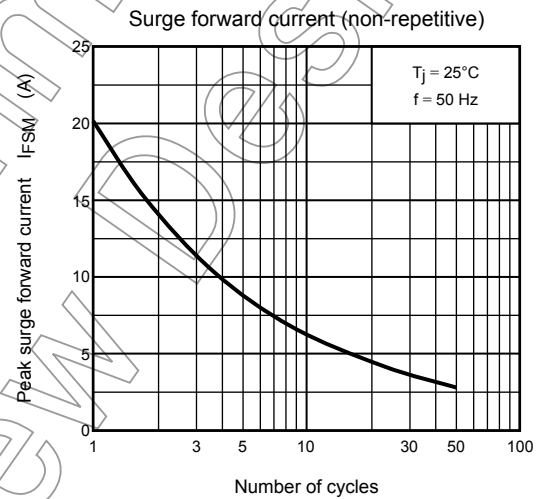
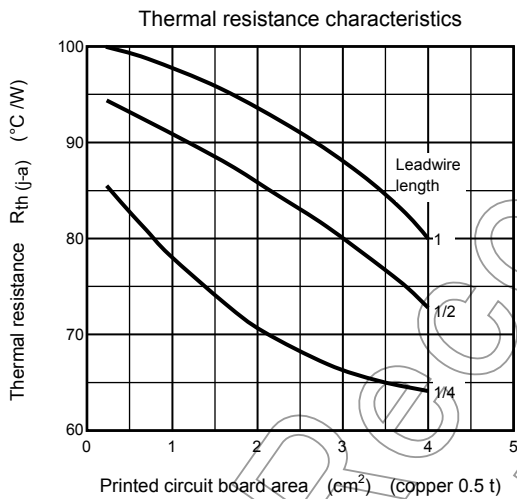
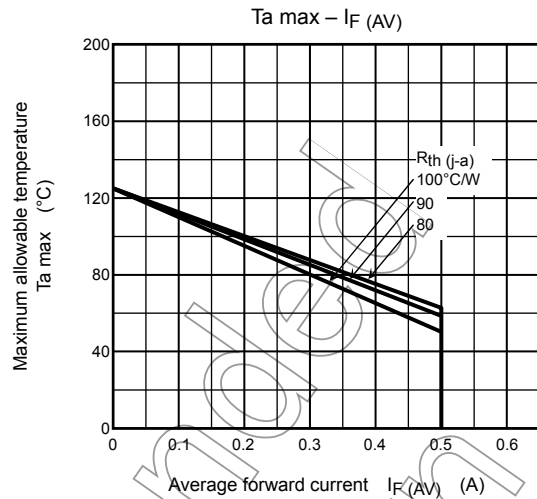
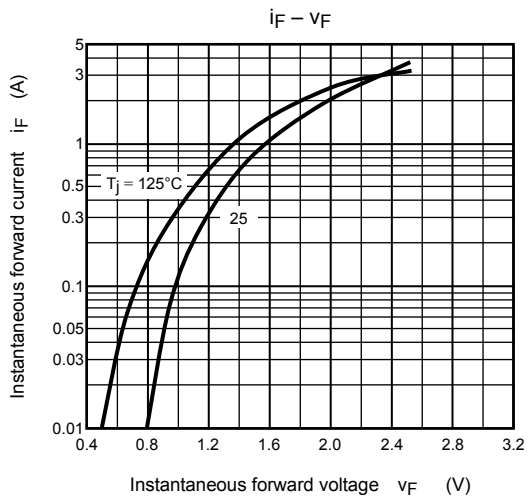
The absolute maximum ratings denote the absolute maximum ratings, which are rated values and must not be exceeded during operation, even for an instant. The following are the general derating methods that we recommend when you design a circuit with a device.

- V_{RRM}:** Because this device is developed for use in a strobe flash, we recommend that peak voltage of set's apply voltage that generates pulse be no greater than 80% of the absolute maximum rating of V_{RRM} and DC supply voltage be no greater than 400 V. V_{RRM} has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.
- I_{F(AV)}:** We recommend that the worst case current be no greater than 80% of the absolute maximum rating of I_{F(AV)}. Carry out adequate heat design. If you can't design a circuit with excellent heat radiation, set the margin by using an allowable Tamax-I_{F(AV)} curve.
- I_{FSM}:** This rating specifies the non-repetitive peak current in one cycle of a 50-Hz sine wave, condition angle 180. Therefore, this is only applied for an abnormal operation, which seldom occurs during the lifespan of the device.
- T_j:** We recommend that a device be used at a T_j of below 100°C under the worst load and heat radiation conditions.

Organic silicon is used as encapsulation material for this product, which is resin seal product. Therefore, it is difficult to seal siloxane coming from silicone completely in this product. When using this product, please consider above.

Please refer to the Rectifiers databook for further information.

Not Recommended for New Design



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