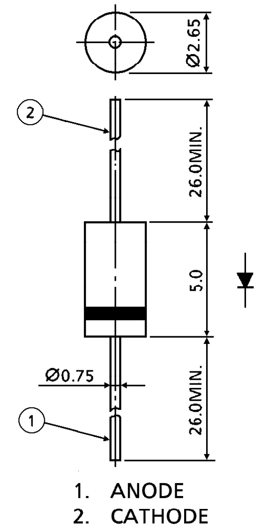
TOSHIBA FAST RECOVERY DIODE SILICON DIFFUSED TYPE

TFR1N, TFR1T

STROBO FLASHER APPLICATIONS. (FAST RECOVERY)

- Average Forward Current : $I_{F(AV)} = 0.5A$
- Repetitive Peak Reverse Voltage : $V_{RRM} = 1000, 1500V$
- Reverse Recovery Time : $t_{rr} = 10\mu s$

Unit in mm



JEDEC	DO-41
EIAJ	—
TOSHIBA	3-3C1A

Weight : 0.3g

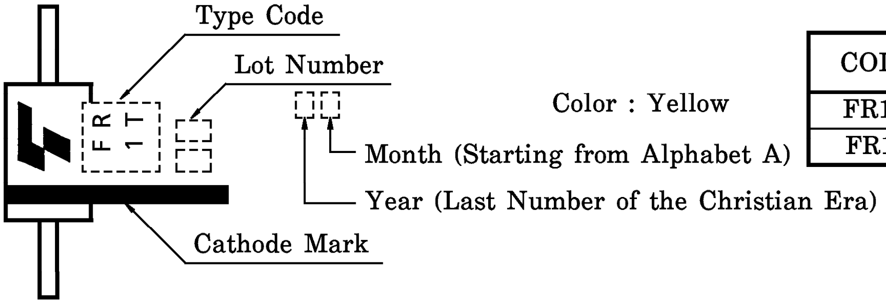
MAXIMUM RATINGS

CHARACTERISTIC		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=1~10ms)		I^2t	2	A^2s
Peak One Cycle Surge Forward Current (Non Repetitive)		I_{FSM}	20	A
Junction Temperature		T_j	−40~125	°C
Storage Temperature Range		T_{stg}	−40~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Peak Forward Voltage	V_{FM}	$I_{FM} = 0.5A$	—	—	1.3	V
Repetitive Peak Reverse Current	I_{RRM}	V_{RRM} = Rated	—	—	10	μA
Reverse Recovery Time	t_{rr}	$I_F = 20mA$, $I_R = 1mA$	—	—	10	μs

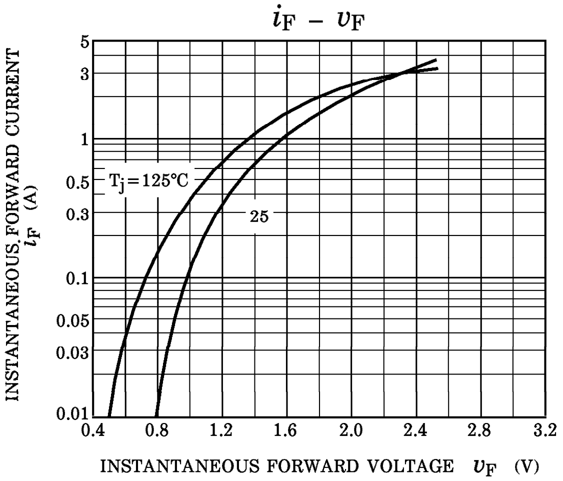
MARKING

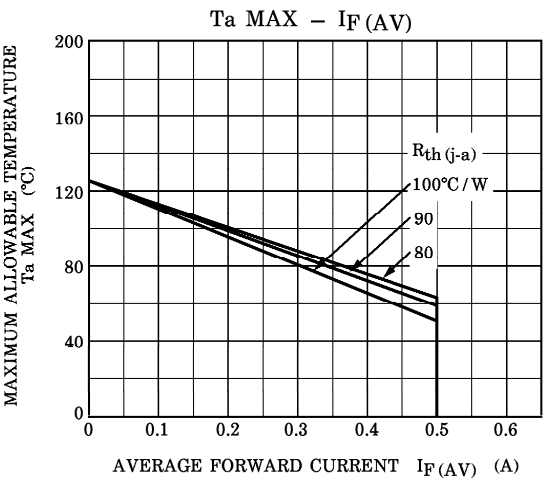


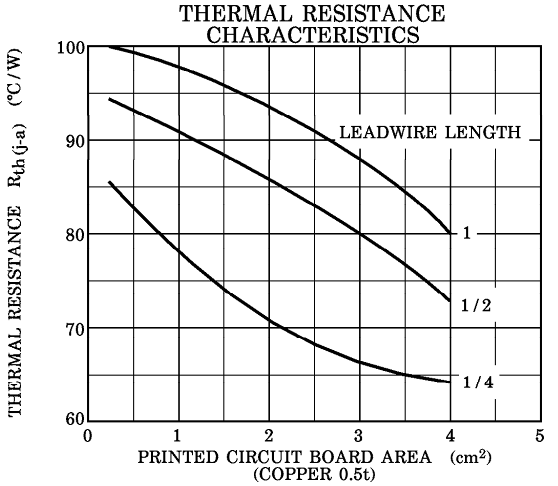
Color : Yellow

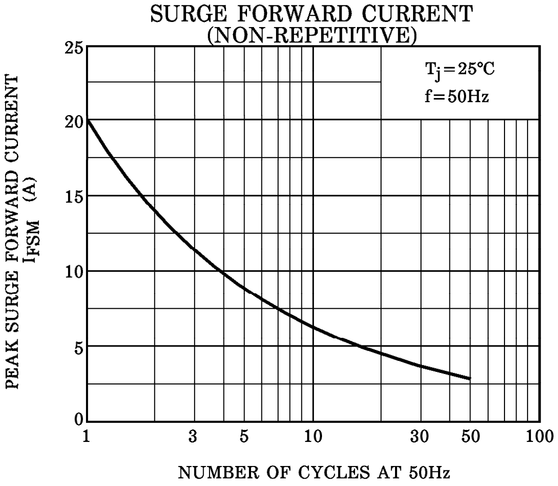
CODE	TYPE
FR1N	TFR1N
FR1T	TFR1T

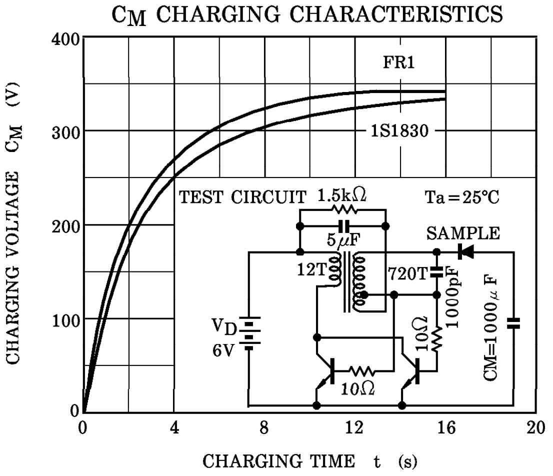
961001EAA2


$i_F - v_F$
INSTANTANEOUS FORWARD CURRENT i_F (A)
5
3
1
0.5
0.3
0.1
0.05
0.03
0.01
T_j=125°C
25
0.4
0.8
1.2
1.6
2.0
2.4
2.8
3.2
INSTANTANEOUS FORWARD VOLTAGE v_F (V)


Ta MAX – $I_{F(AV)}$
MAXIMUM ALLOWABLE TEMPERATURE Ta MAX (°C)
200
160
120
80
40
0
$R_{th\,(j\text{-}a)}$
100°C/W
90
80
0
0.1
0.2
0.3
0.4
0.5
0.6
AVERAGE FORWARD CURRENT $I_{F(AV)}$ (A)


THERMAL RESISTANCE CHARACTERISTICS
THERMAL RESISTANCE $R_{th\,(j\text{-}a)}$ (°C/W)
100
90
80
70
60
LEADWIRE LENGTH
1
1/2
1/4
0
1
2
3
4
5
PRINTED CIRCUIT BOARD AREA (cm^2)
(COPPER 0.5t)


SURGE FORWARD CURRENT
(NON-REPETITIVE)
PEAK SURGE FORWARD CURRENT I_{FSM} (A)
25
20
15
10
5
0
T_j=25°C
f=50Hz
1
3
5
10
30
50
100
NUMBER OF CYCLES AT 50Hz


C_M CHARGING CHARACTERISTICS
CHARGING VOLTAGE C_M (V)
400
300
200
100
0
FR1
1S1830
TEST CIRCUIT
1.5kΩ
Ta=25°C
5μF
SAMPLE
12T
720T
1000pF
V_D
6V
10Ω
10Ω
CM=1000μF
0
4
8
12
16
20
CHARGING TIME t (s)