DBT141-600

Triacs / Sensitive Gate

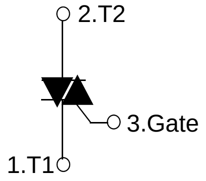
Features

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$= 25 A)
- ◆ High Commutation dv/dt
- ◆ Sensitive Gate Triggering 3 Mode (I_{GT} = 10mA)
- ◆ Non-isolated Type

General Description

This device is sensitive gate triggering triac suitable for direct coupling to TTL, HTL, CMOS and application such as various logic functions, high power AC switching applications, such as fan speed, lighting controllers and home appliance equipment.

Symbol

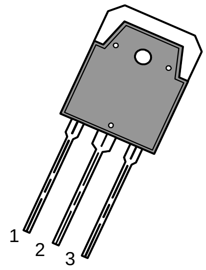


BV_{DRM} = 600V

$I_{T(RMS)}$ = 25 A

I_{TSM} = 250 A

TO- 3P



Absolute Maximum Ratings (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Condition	Ratings	Units
V_{DRM}	Repetitive Peak Off-State Voltage		600	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 86 °C	25	A
I_{TSM}	Surge On-State Current	One Cycle, 50Hz/60Hz, Peak, Non-Repetitive	225/250	A
I^2t	I^2t	t =10ms	260	A^2s
P_{GM}	Peak Gate Power Dissipation	T_C =85 °C, Pulse width ≤ 1.0µs	5.0	W
$P_{G(AV)}$	Average Gate Power Dissipation	Over any 20ms period	0.5	W
I_{GM}	Peak Gate Current	tp = 20µs, T_J=125°C	2.0	A
V_{GM}	Peak Gate Voltage	tp = 20µs, T_J=125°C	10	V
T_J	Operating Junction Temperature		- 40 ~ 125	°C
T_{STG}	Storage Temperature		- 40 ~ 150	°C
	Mass		6.2	g

DBT141-600

Electrical Characteristics

Symbol	Items		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{DRM}	Repetitive Peak Off-State Current		$V_D = V_{DRM}$, Single Phase, Half Wave $T_J = 125\ °C$	—	—	5.0	mA
V_{TM}	Peak On-State Voltage		$I_T = 35$ A, Inst. Measurement	—	—	1.55	V
I^+_{GT1}	I	Gate Trigger Current	$V_D = 6$ V, R_L=10 Ω	—	—	10	mA
I^-_{GT1}	II			—	—	10	
I^-_{GT3}	III			—	—	10	
I^+_{GT3}	IV			—	25	—	
V^+_{GT1}	I	Gate Trigger Voltage	$V_D = 6$ V, R_L=10 Ω	—	—	1.5	V
V^-_{GT1}	II			—	—	1.5	
V^-_{GT3}	III			—	—	1.5	
V^+_{GT3}	IV			—	—	2.5	
V_{GD}	Non-Trigger Gate Voltage		$T_J = 125\ °C$, $V_D = 1/2\ V_{DRM}$	0.2	—	—	V
(dv/dt)c	Critical Rate of Rise Off-State Voltage at Commutation		$T_J = 125\ °C$, [di/dt]c = -12.5 A/ms, V_D=2/3 V_{DRM}	6	—	—	V/μs
I_H	Holding Current			—	35	—	mA
$R_{th(j-c)}$	Thermal Impedance		Junction to case	—	—	1.3	°C/W

Fig 1. Gate Characteristics

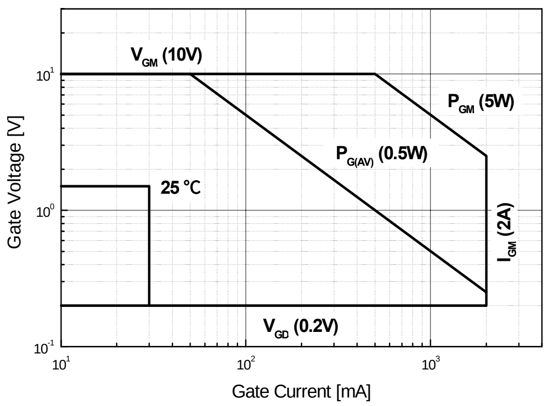


Fig 2. On-State Voltage

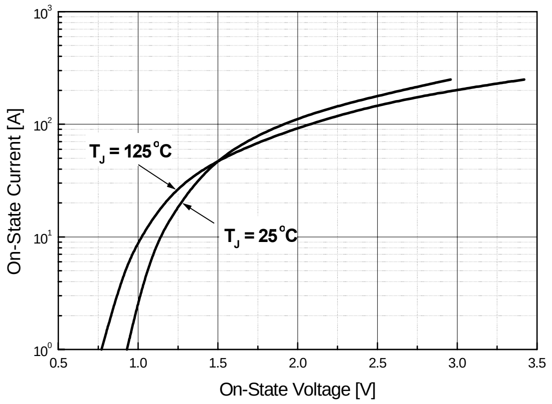


Fig 3. On State Current vs. Maximum Power Dissipation

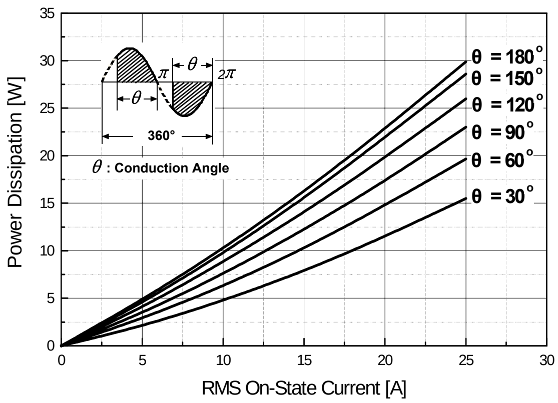


Fig 4. On State Current vs. Allowable Case Temperature

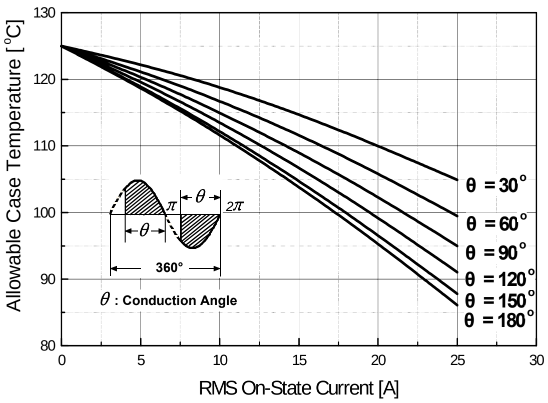


Fig 5. Surge On-State Current Rating (Non-Repetitive)

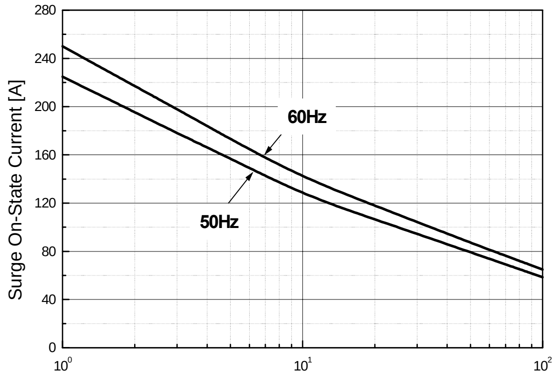


Fig 6. Gate Trigger Voltage vs. Junction Temperature

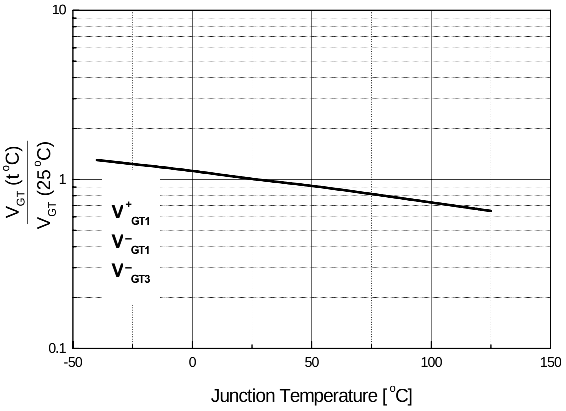


Fig 7. Gate Trigger Current vs. Junction Temperature

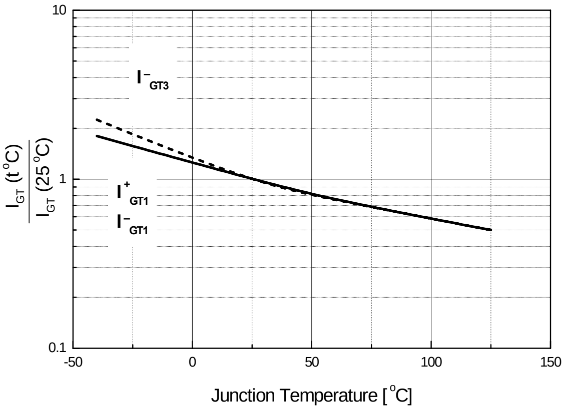


Fig 8. Transient Thermal Impedance

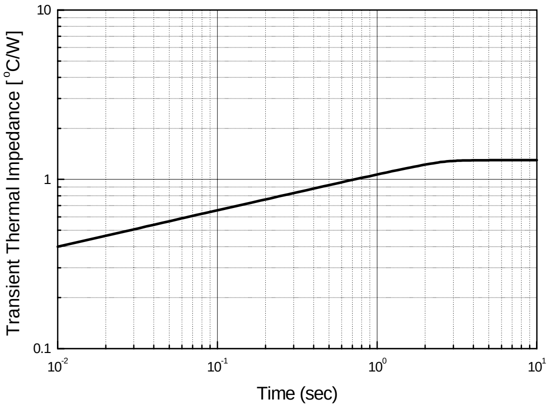
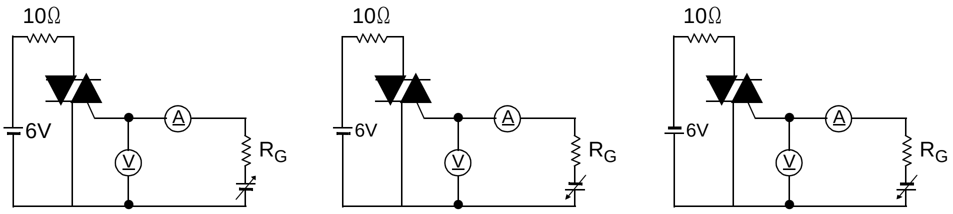


Fig 9. Gate Trigger Characteristics Test Circuit

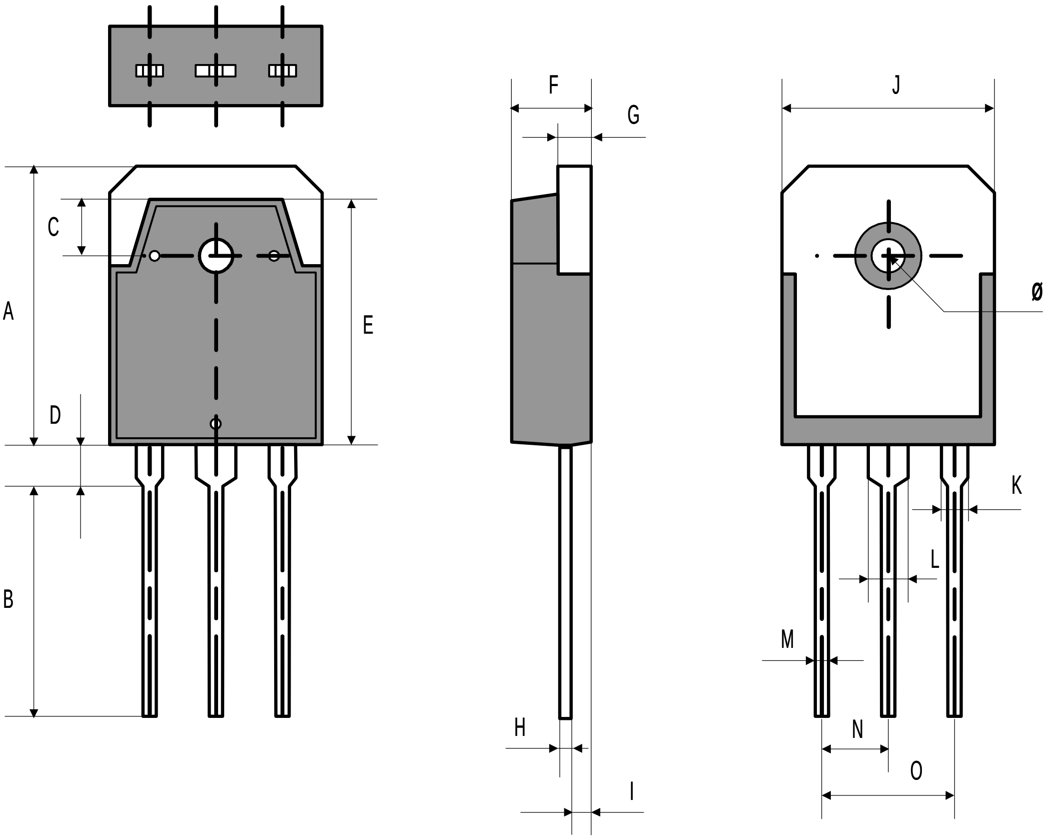


Test Procedure Ⅰ

Test Procedure Ⅱ

Test Procedure Ⅲ

TO - 3P Package Dimension



DIMENSION		A	B	C	D	E	F	G	H
mm	Min	19.70	16.20	3.60	3.30	18.50	4.60	1.45	0.55
	Typ.	19.90	16.50	3.80	3.50	18.70	4.80	1.50	0.60
	Max	20.10	16.80	4.00	3.70	18.90	5.00	1.65	0.75

DIMENSION		I	J	K	L	M	N	O	
mm	Min	1.20	15.40	1.80	2.80	0.80			
	Typ.	1.40	15.60	2.00	3.00	1.00	5.45	10.90	
	Max	1.60	15.80	2.20	3.20	1.20			