

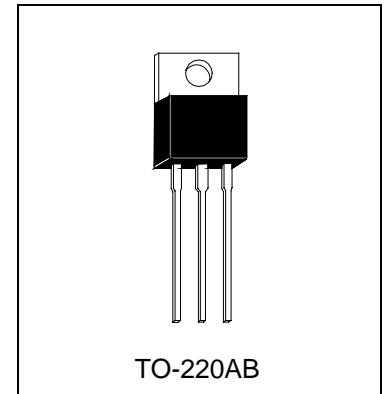


HBT137XE

Three Quadrant Triac

Description

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.



Quick Reference Data

Part No.	$V_{DRM}(V)$	$I_{T(RMS)}(A)$	$I_{TSM}(A)$	Quadrant
HBT137DE	600	8	65	I - II - III

Pin Configuration

Pin	Description		Symbol
1	Main terminal 1		
2	Main terminal 2		
3	Gate		
tab	Main terminal 2		

Limiting Values

Symbol	Parameter	Min.	Max.	Units
V_{DRM}	Repetitive peak off-state voltages	-	600	V
$I_{T(RMS)}$	RMS on-state current	-	8	A
I_{TSM}	Non-repetitive peak on-state current	-	65	A
I^2t	I^2t for fusing	-	32	A ² S
di_T/dt	Repetitive rate of rise of on-state current after triggering T2+ G+	-	50	A/us
	T2+ G-	-	50	A/us
	T2- G-	-	50	A/us
	T2- G+	-	-	A/us
I_{GM}	Peak gate current	-	2	A
V_{GM}	Peak gate voltage	-	10	V
P_{GM}	Peak gate power	-	5	W
$P_{G(AV)}$	Average gate power	-	0.5	W
Tstg	Storage Temperature Range	-	150	°C
Tj	Operating junction temperature	-40	125	°C



Static Characteristics (Ta=25°C)

Symbol	Parameter	Conditions	Rank	Unit
			V	
I _{GT}	Gate Trigger Current	V _D =6V, R _L =10Ω, T2+ G+	25	mA
		V _D =6V, R _L =10Ω, T2+ G-	25	mA
		V _D =6V, R _L =10Ω, T2- G-	25	mA
		V _D =6V, R _L =10Ω, T2- G+	-	mA
I _L	Latching Current	V _D =6V, R _L =10Ω, T2+ G+	20	mA
		V _D =6V, R _L =10Ω, T2+ G-	30	mA
		V _D =6V, R _L =10Ω, T2- G-	30	mA
		V _D =6V, R _L =10Ω, T2- G+	-	mA
I _H	Holding Current	V _D =12V, I _{GT} =0.1A	20	mA
V _T	On-state Voltage	I _T =12A	1.65	V
V _{GT}	Gate Trigger Voltage	V _D =6V, R _L =10Ω, T2+ G+	1.5	V
		V _D =6V, R _L =10Ω, T2+ G-	1.5	V
		V _D =6V, R _L =10Ω, T2- G-	1.5	V
		V _D =6V, R _L =10Ω, T2- G+	-	V
I _D	Off-state Leakage Current	V _D =V _{DRM}	500	uA

Static Characteristics

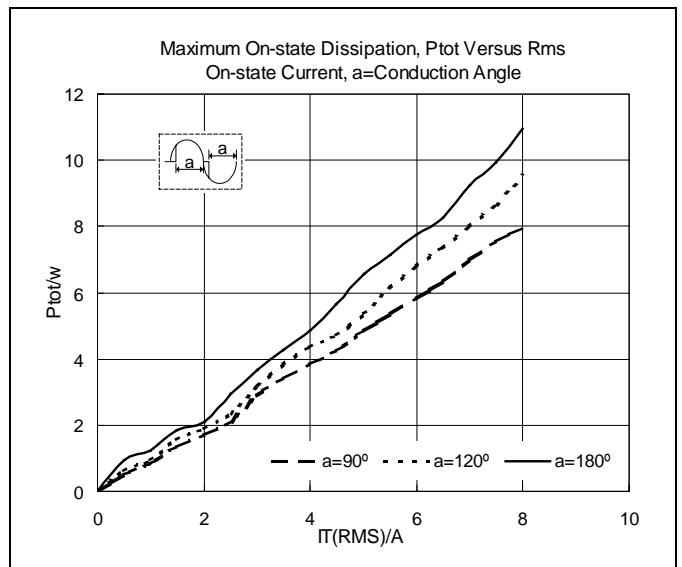
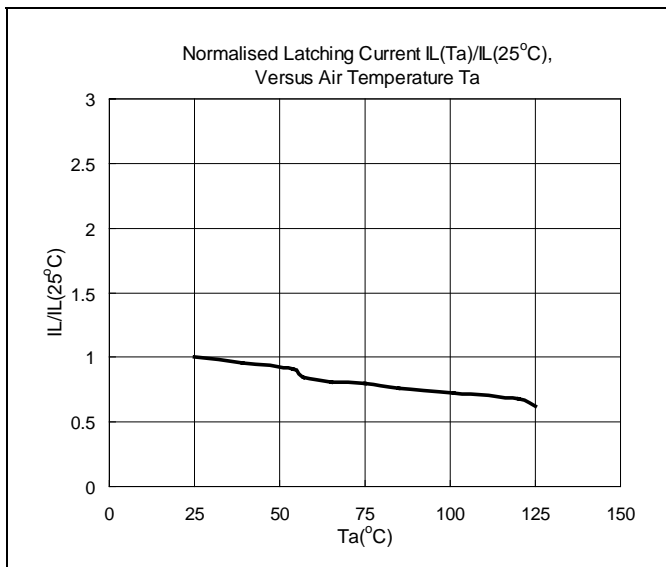
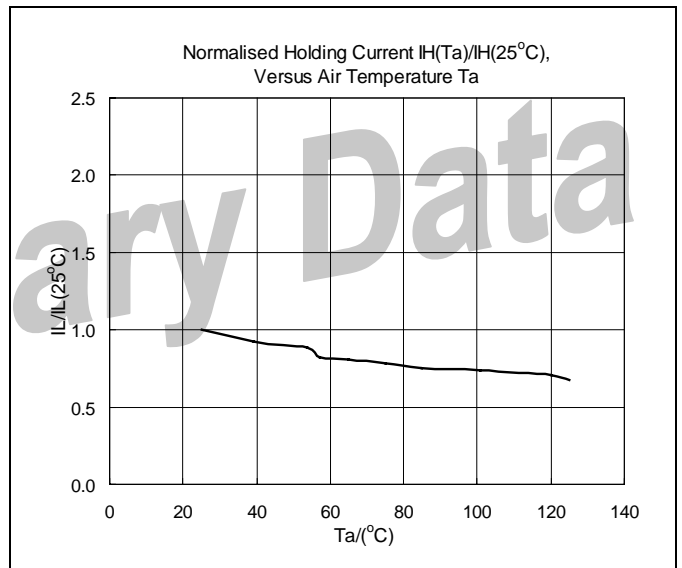
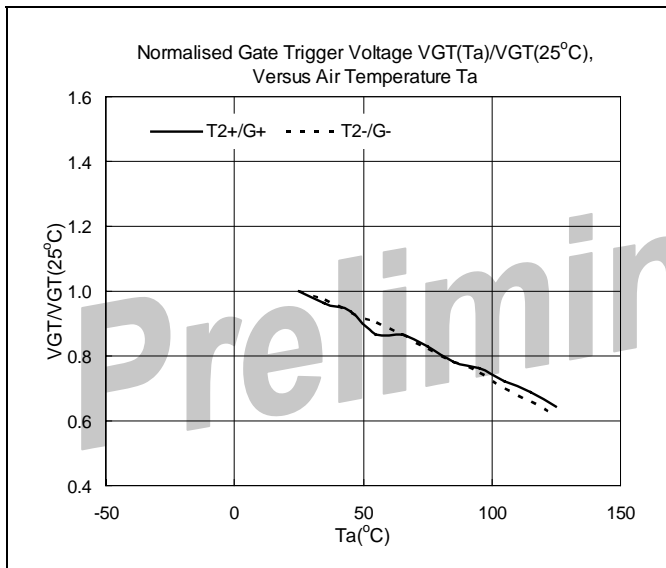
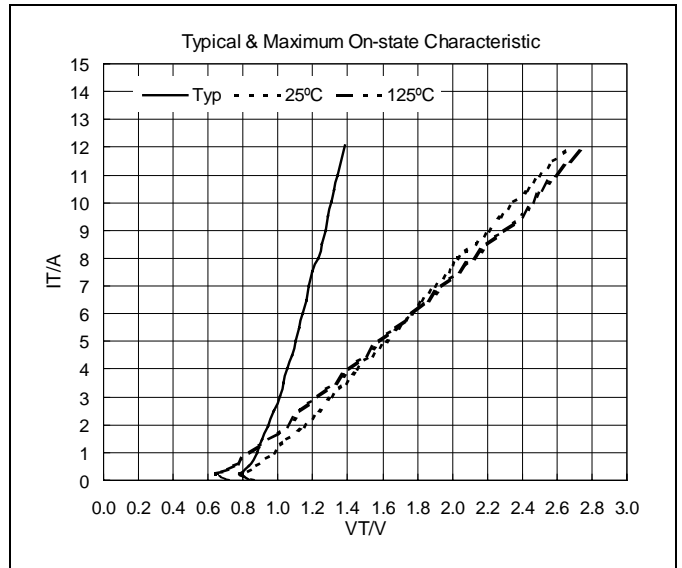
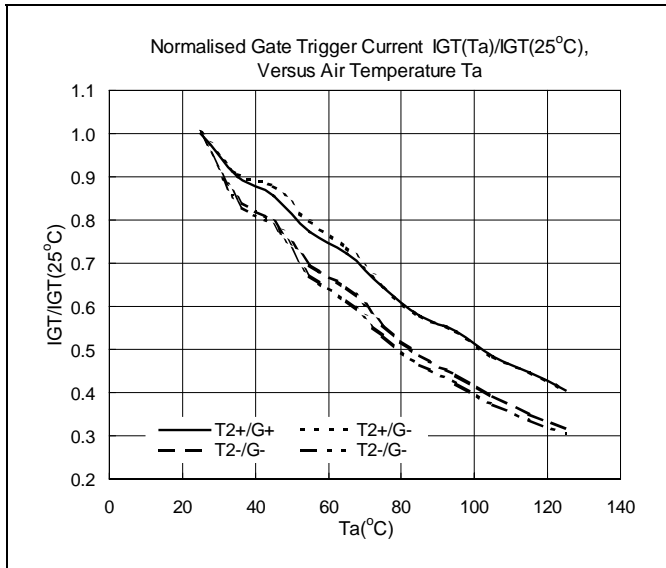
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
dV _D /dt	Critical rate of rise of off-state voltage	V _{DM} =67% V _{DRM(max)} ; T _j = 125°C; exponential waveform; gate open circuit	-	50	-	V/us
tgt	Gate controlled turn-on time	I _{TM} =6A; V _D =V _{DRM(max)} ; I _G =0.1A; dI _G /dt=5A/us	-	2	-	us

Thermal Resistances

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Rth j-mb	Thermal resistance junction to mounting base	Full cycle Half cycle In free air	-	-	2.0	K/W
Rth j-a	Thermal resistance junction to ambient		-	-	2.47	K/W
			-	60	-	K/W

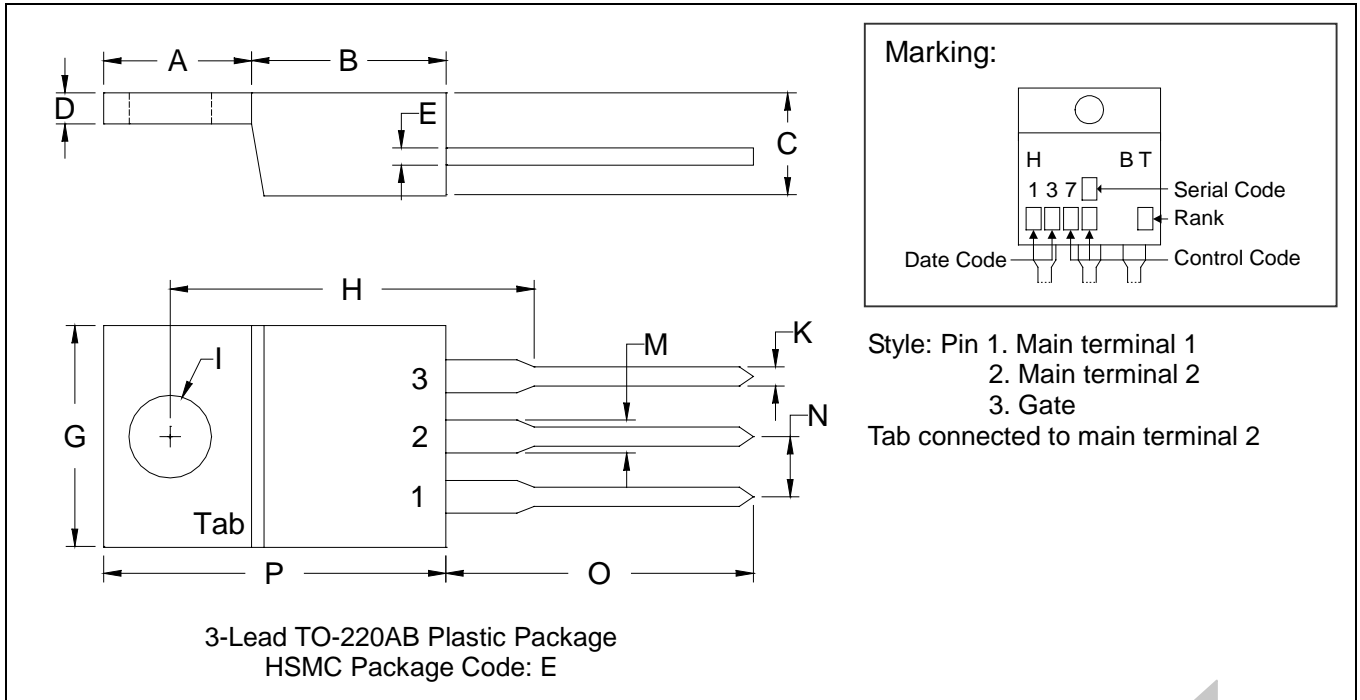


Characteristics Curve





TO-220AB Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.2197	0.2949	5.58	7.49	I	-	*0.1508	-	*3.83
B	0.3299	0.3504	8.38	8.90	K	0.0295	0.0374	0.75	0.95
C	0.1732	0.185	4.40	4.70	M	0.0449	0.0551	1.14	1.40
D	0.0453	0.0547	1.15	1.39	N	-	*0.1000	-	*2.54
E	0.0138	0.0236	0.35	0.60	O	0.5000	0.5618	12.70	14.27
G	0.3803	0.4047	9.66	10.28	P	0.5701	0.6248	14.48	15.87
H	-	*0.6398	-	*16.25					

- Notes:**
- 1.Dimension and tolerance based on our Spec. dated Sep. 07,1997.
 - 2.Controlling dimension: millimeters.
 - 3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 - 4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

Material:

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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