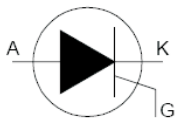
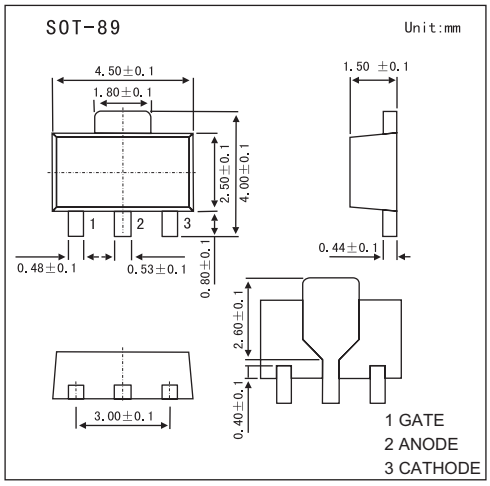
Silicon Controlled Rectifiers
HBT169M

■ Features

- Repetitive peak off-state voltages :400V
- Average on-state current :0.5A
- RMS on-state current :0.8A
- Non-repetitive peak on-state current :8A

Symbol





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Peak Repetitive Forward and Reverse Blocking Voltage*	V_{DRM} and V_{RRM}	400	V
Forward Current RMS	$I_{T(RMS)}$	0.8	A
Non-repetitive peak on-state current (t=10ms)	I_{TSM}	8	A
Non-repetitive peak on-state current (t=8.3ms)		9	A
Circuit Fusing Considerations (t = 10ms)	I^2t	0.32	A^2s
Repetitive rate of rise of on-state current after triggering *1	dI_T/dt	50	A/us
Peak gate current	I_{GM}	1	A
Peak Gate Power — Forward, T_A = 25℃	P_{GM}	2	W
Average Gate Power — Forward, T_A = 25℃	$P_{GF(AV)}$	0.1	W
Peak Gate Current — Forward, T_A = 25℃	I_{GFM}	1	A
Peak gate voltage	V_{GM}	5	V
Peak Gate Voltage — Reverse	V_{GRM}	5	V
Thermal resistance junction to lead *2	$R_{th\ j\text{-}lead}$	60	K/W
Thermal resistance junction to ambient *2	$R_{th\ j\text{-}a}$	150	K/W
Storage temperature	T_{stg}	150	℃
Operating junction temperature	T_J	125	℃

*1 I_{TM}=2A; I_G=10mA; dI_G/dt=100mA/us)

*2 pcb mounted;lead length=4mm

HBT169M

■ Electrical Characteristics (Ta = 25℃, unless otherwise noted.)

Parameter	Symbol	Testconditons	Min	Typ.	Max	Unit
On-state Voltage	V_T	I_T=1A		1.2	1.35	V
Gate Trigger Current (Continuous dc)*2 Tc = 25℃	I_{GT}	V_D=12V, I_T=10mA,Gate open circuit		50	200	μA
Latching Current	I_L	V_D=12V, I_{GT}=0.5mA; R_{GK}=1kΩ		2	6	mA
Holding Current	I_H	V_D=12V, I_{GT}=0.5mA; R_{GK}=1kΩ		2	5	mA
Gate Trigger Voltage	V_{GT}	V_D=12V, IT=10mA,Gate open circuit		0.5	0.8	V
		V_D= V_{DRM}(max), I_T=10mA; T_j=125℃,Gate open circuit	0.2	0.2		
Off-state Leakage Current	I_D,I_R	V_D=V_{DRM}(max); V_R= V_{RRM}(max);T_j=125℃; R_{GK}=1kΩ		0.05	0.1	mA
Critical rate of rise of off-state voltage	dVD/dt	V_{DM}=67% V_{DRM}(max); T_j=125℃,exponential waveform; R_{GK}=1kΩ	500	800		V/us
Gate controlled turn-on time	tgt	I_{TM}=2A; V_D=V_{DRM}(max),G=10mA; dI_G/dt=0.1A/us		2		us
Circuit commutated turn-off time	tq	V_D=67% V_{DRM}(max); T_j=125℃,T_M=1.6A; V_R=35V; dI_{TM}/dt=30A/us,dV_D/dt=2V/us; R_{GK}=1kΩ		100		us

*1. Forward current applied for 1 ms maximum duration, duty cycle ≤ 1%.

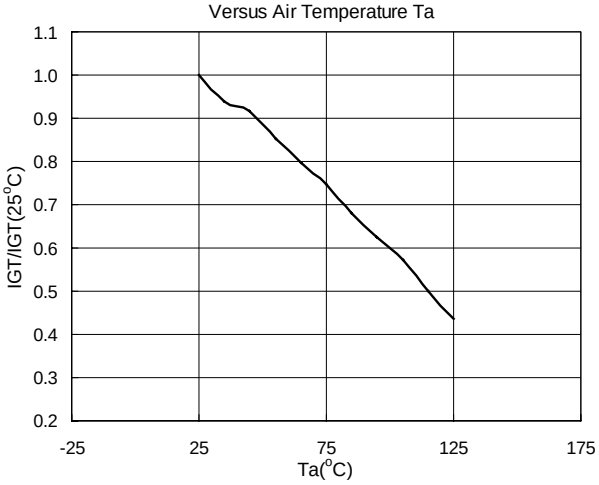
*2. R_{GK} current is not included in measurement.

■ Marking

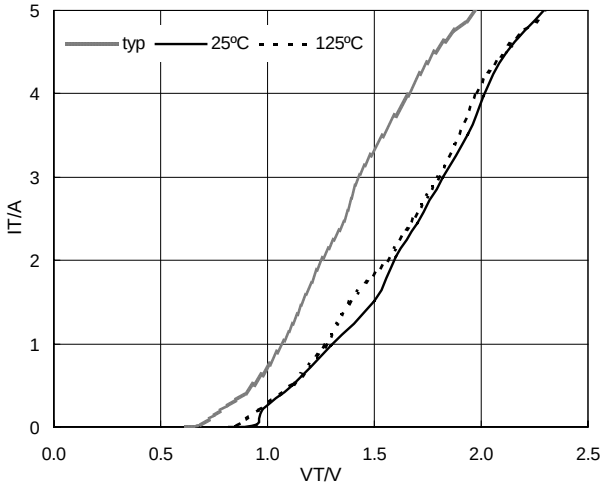
Marking	169

HBT169M

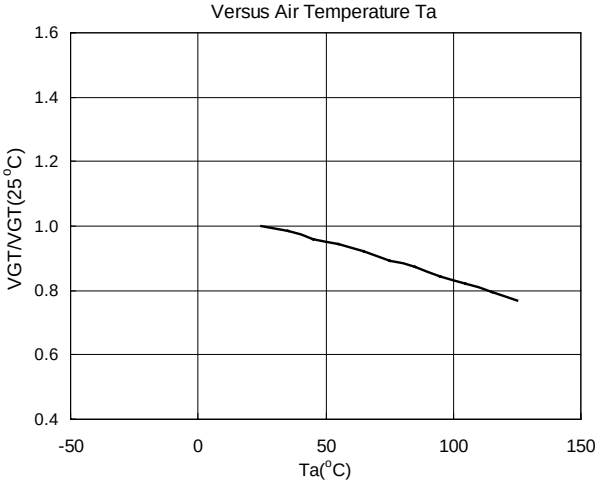
Normalised Gate Trigger Current IGT(Ta)/IGT(25°C), Versus Air Temperature Ta



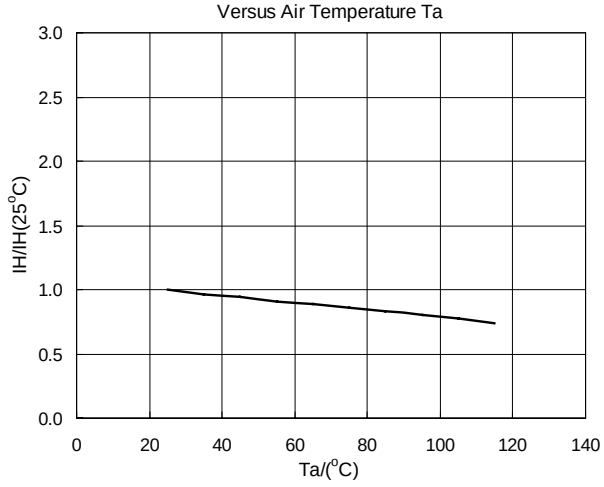
Typical & Maximum On-state Characteristic



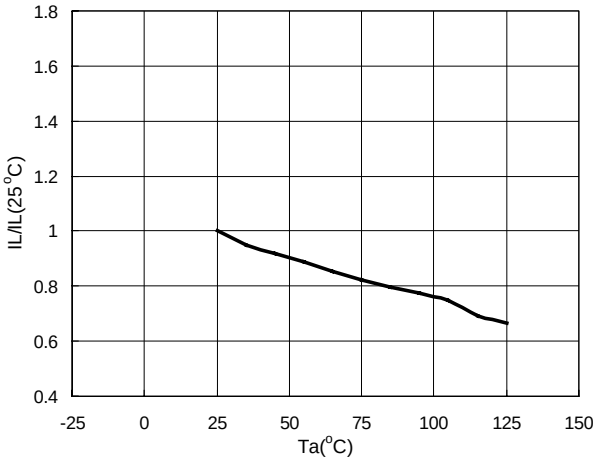
Normalised Gate Trigger Voltage VGT(Ta)/VGT(25°C), Versus Air Temperature Ta



Normalised Holding Current IH(Ta)/IH(25°C), Versus Air Temperature Ta



Normalised Latching Current IL(Ta)/IL(25°C), Vrsus Air Temperature Ta



Maximum On-atate Dissipation, Ptot Versus Average On-state Current, IT(AV) a=conduction angle