



1.Features

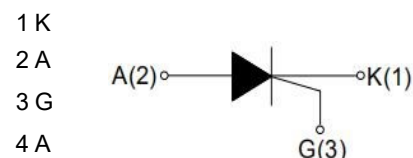
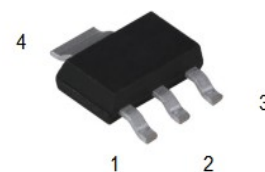
- The STV0205 provide high dv/dt rate with strong resistance to electromagnetic interface.
- are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

Symbol	Value	Unit
$I_{T(RMS)}$	2.0	A
V_{DRM}/V_{RRM}	600/800	V
I_{GT}	≤ 200	μA
V_{TM}	≤ 1.5	V

2.Mechanical Data

- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: STV0205

SOT-223



3.ABSOLUTE RATINGS (TC=25°C)

Parameters	Condition	Symbol	Value	Unit
Repetitive peak off-state voltage		V_{DRM}	600/800	V
Repetitive peak reverse voltage		V_{RRM}	600/800	V
RMS On-state current	full sine wave	$I_{T(RMS)}$	2	A
Non repetitive surge peak on-state current	full cycle, F=50Hz	I_{TSM}	20	A
I^2t value for fusing	$t_p=10ms$	I^2t	2	A^2s
Critical rate of rise of on-state current	$I_G=2*I_{GT}$	di/dt	50	$A/\mu s$
Peak gate current		I_{GM}	0.2	A
Peak gate power		P_{GM}	0.5	W
Average gate power		$P_{G(AV)}$	0.1	W
Storage temperature		T_j	-40 to +150	°C
Operation junction temperature		T_{stg}	-40 to +110	°C

4.ELECTRICAL CHARACTERISTIC (TC=25°C)

Parameters	Condition	Symbol	Min	Typ	Max	Unit
Peak Repetitive Blocking Current	$V_{DRM}=V_{RRM}$, $T_j=25^\circ C$, $R_{GK}=1K\Omega$	I_{DRM}/I_{RRM}	-	-	5	μA
	$V_{DRM}=V_{RRM}$, $T_j=110^\circ C$, $R_{GK}=1K\Omega$		-	-	100	μA
Peak on-state voltage	$I_{TM}=4A$, $t_p=380\mu s$	V_{TM}	-	-	1.5	V
Gate trigger current	$V_{DM}=12V, R_L=33\Omega$	I_{GT}	-	40	200	μA
Gate trigger voltage	$V_{DM}=12V, R_L=33\Omega$	V_{GT}	-	0.5	1.5	V
Holding current	$I_T=50mA$	I_H	-	-	2	mA
Latching current	$I_G=1.2 I_{GT}$	I_L	-	-	3	mA
Rise of off- state voltage	$V_{DM}=67\% V_{DRM(MAX)}$, $T_j=110^\circ C$, gate open , $R_{GK}=1K\Omega$	dV/dt	10	-	-	$V/\mu s$
Thermal resistance junction to case	junction to case(AC)	$R_{th(j-c)}$	-	-	20	°C/W



5. Rating And Characteristic Curves

Fig.1 $P_{tot}-I_{T(RMS)}$

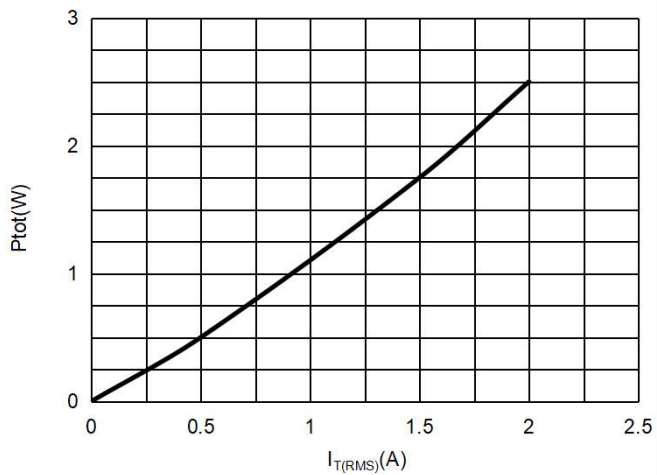


Fig.2 $I_{T(RMS)}$ -Number of cycles

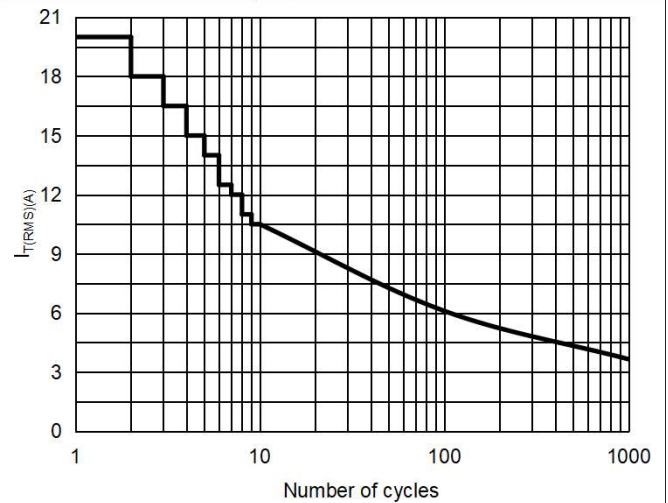


Fig.3 $I_{TSM}-t_p$

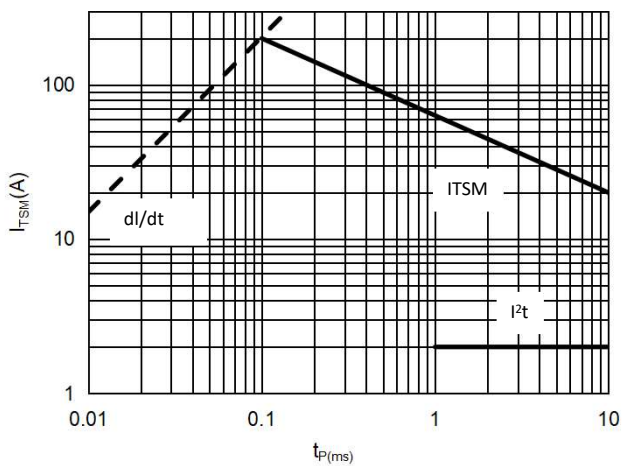


Fig.4 $V_{TM}-I_T$

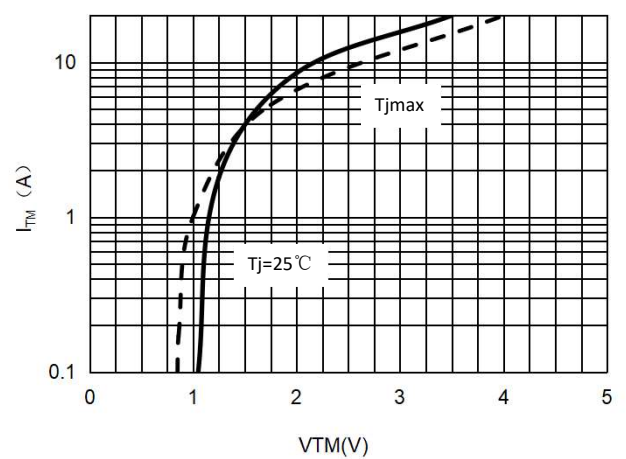


Fig.5 $I_{T(RMS)}-T_C$

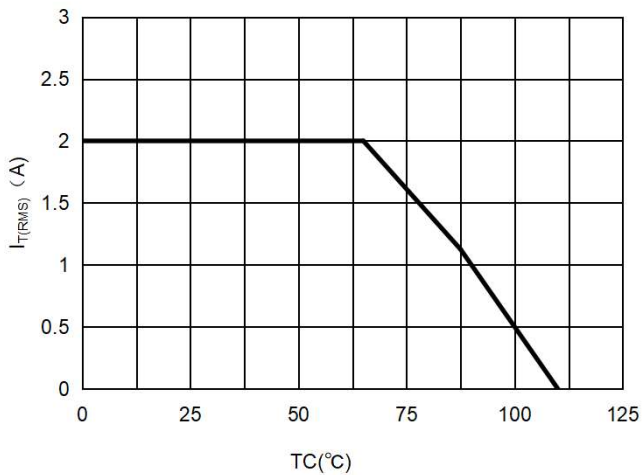
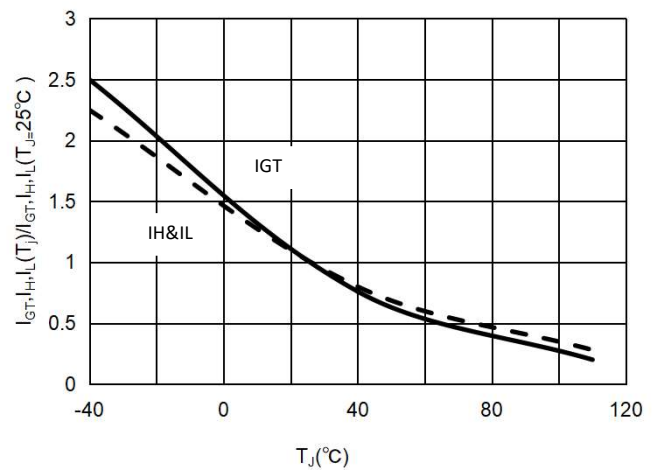
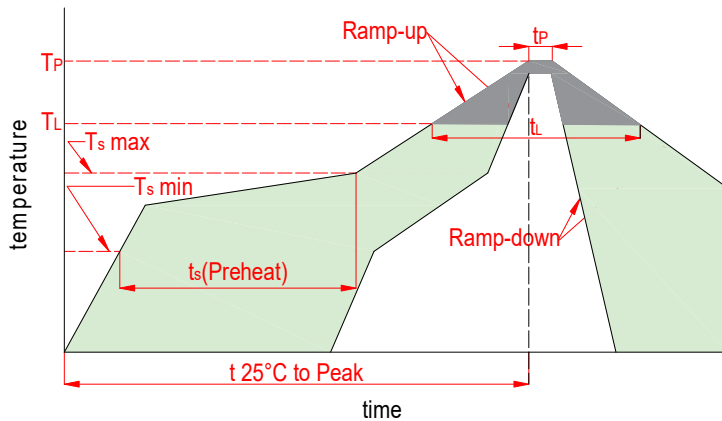


Fig.6 $I_{GT}, I_{H,L}(T_J)/I_{GT}, I_{H,L}(T_J=25^\circ C)-T_J$



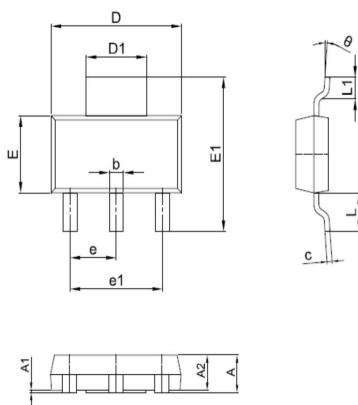


6. Soldering Parameters



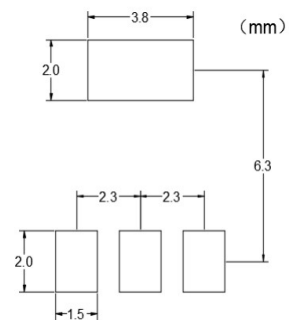
Reflow Condition		Lead-free
Pre Heat	Temp. min($T_s(\min)$)	150°C
	Temp. max($T_s(\min)$)	200°C
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3°C/s max
$T_s(\max)$ to T_L -Ramp-up Rate		3°C/s max
Reflow	Temp. (T_L)(Liquidus)	217°C
	Temp. (t_L)(Liquidus)	60~150s
Peak Temp. (T_p)		260 ^{+0/-5} °C
Time within actual peak Temp. (t_p)		30s max
Ramp-down Rate		6°C/s max
Time 25°C to peak Tempe. (T_p)		8 minutes max
Do not exceed		260°C

7. Dimensions

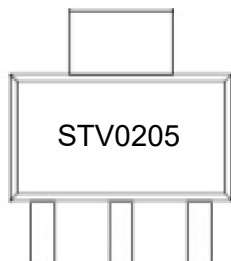


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.059	0.071	1.500	1.800
A1	0.000	0.004	0.000	0.100
A2	0.059	0.067	1.500	1.700
b	0.026	0.030	0.650	0.750
c	0.008	0.012	0.200	0.300
D	0.252	0.260	6.400	6.600
D1	0.114	0.122	2.900	3.100
E	0.130	0.146	3.300	3.700
E1	0.270	0.281	6.850	7.150
e	0.087	0.094	2.200	2.400
e1	0.173	0.189	4.400	4.800
L	0.065	0.073	1.650	1.850
L1	0.035	0.045	0.900	1.150

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Type	Tape Width (mm)	Quantity(pcs)
SOT-223	STV0205	12	4000



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