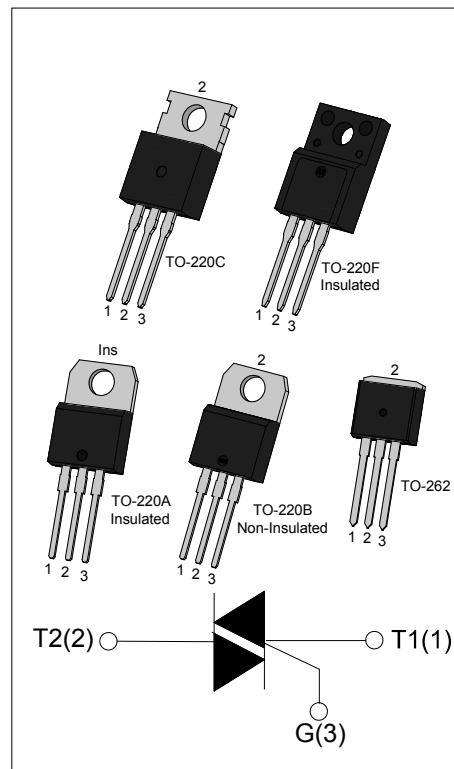




DESCRIPTION:

With high ability to withstand the shock loading of large current, JST12 series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load. From all three terminals to external heatsink, JST12A provides a rated insulation voltage of 2500 V_{RMS}, and JST12F provides a rated insulation voltage of 2000 V_{RMS}, complying with UL standards (File ref: E252906). All the packages above are RoHS compliant. (2011/65/EU)



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	600/800/1200	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	°C
Operating junction temperature range		T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)		V_{DRM}	600/800/1200	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)		V_{RRM}	600/800/1200	V
Non repetitive surge peak Off-state voltage		V_{DSM}	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		V_{RSM}	$V_{RRM} + 100$	V
RMS on-state current	TO-220A(Ins) ($T_C=85^\circ\text{C}$)	$I_{T(RMS)}$	12	A
	TO-262/ TO-220B(Non-Ins)/ TO-220C($T_C=100^\circ\text{C}$)			
	TO-220F(Ins) ($T_C=80^\circ\text{C}$)			

Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	120	A
I^2t value for fusing ($t_p=10ms$)	I^2t	78	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	I - II -III	di/dt	50
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ C$ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value				Unit
				BW	CW	SW	TW	
I_{GT}	$V_D=12V R_L=33\Omega$	I - II -III	MAX	50	35	10	5	mA
V_{GT}		I - II -III	MAX	1.3				V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ C$ $R_L=3.3K\Omega$	I - II -III	MIN	0.2				V
I_L	$I_G=1.2I_{GT}$	I -III	MAX	80	50	30	20	mA
		II		90	60	40	30	
I_H	$I_T=100mA$		MAX	60	40	20	15	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	1000	500	200	100	$V/\mu s$
$(di/dt)_c$	Without snubber $T_j=125^\circ C$		MIN	12	6.5	-	-	A/ms

4 Quadrants

Symbol	Test Condition	Quadrant		Value		Unit
				B	C	
I_{GT}	$V_D=12V R_L=33\Omega$	I - II -III	MAX	50	25	mA
		IV		70	50	
V_{GT}		ALL	MAX	1.3		V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ C$ $R_L=3.3K\Omega$	ALL	MIN	0.2		V
I_L	$I_G=1.2I_{GT}$	I -III-IV	MAX	50	40	mA
		II		100	80	

I_H	$I_T=100\text{mA}$	MAX	50	25	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$	MIN	500	200	V/ μs
$(dV/dt)_c$	$(dI/dt)_c=5.3\text{A/ms}$ $T_j=125^\circ\text{C}$	MIN	10	5	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=17\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.5	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
I_{RRM}		$T_j=125^\circ\text{C}$	1	mA

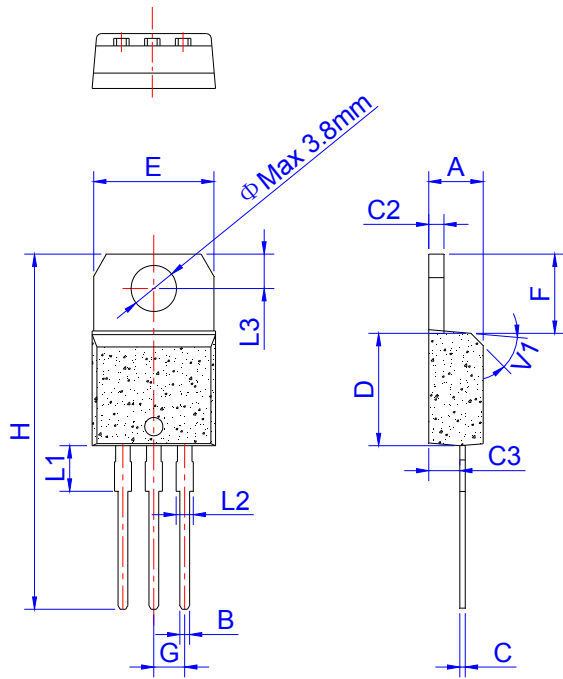
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2.3	$^\circ\text{C/W}$
		TO-262/ TO-220B(Non-Ins)/ TO-220C	1.4	
		TO-220F(Ins)	2.5	

ORDERING INFORMATION

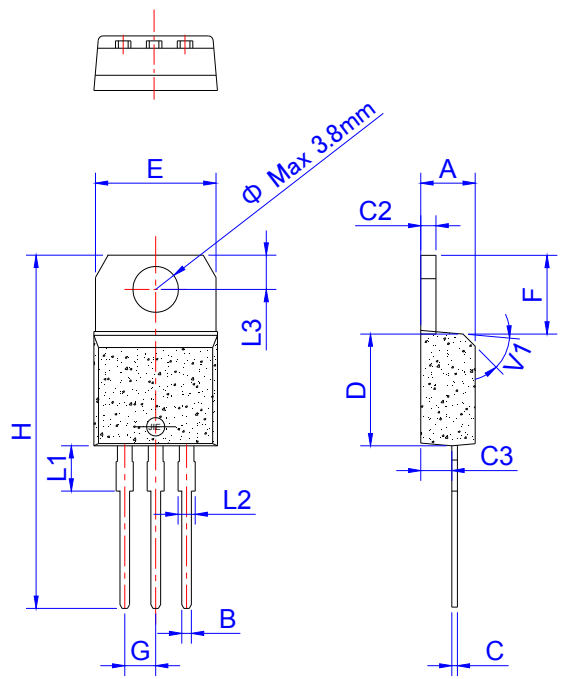
<p>JieJie Microelectronics Co.,Ltd</p>	<p>J</p> <p>Triacs</p> <p>$I_{T(RMS)}:12\text{A}$</p> <p>A:TO-220A(Ins) F:TO-220F(Ins) B:TO-220B(Non-Ins) C:TO-220C D:TO-262 DTR:TO-262(Tape&Reel)</p>	<p>ST</p>	<p>12</p>	<p>A</p>	<p>-600</p> <p>600:$V_{DRM}/V_{RRM}\geq 600\text{V}$ 800:$V_{DRM}/V_{RRM}\geq 800\text{V}$ 1200:$V_{DRM}/V_{RRM}\geq 1200\text{V}$</p>	<p>BW</p> <p>BW:$I_{GT1-3}\leq 50\text{mA}$ CW:$I_{GT1-3}\leq 35\text{mA}$ SW:$I_{GT1-3}\leq 10\text{mA}$ TW:$I_{GT1-3}\leq 5\text{mA}$ B:$I_{GT1-3}\leq 50\text{mA}$ $I_{GT4}\leq 70\text{mA}$ C:$I_{GT1-3}\leq 25\text{mA}$ $I_{GT4}\leq 50\text{mA}$</p>
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PACKAGE MECHANICAL DATA



TO-220A Ins

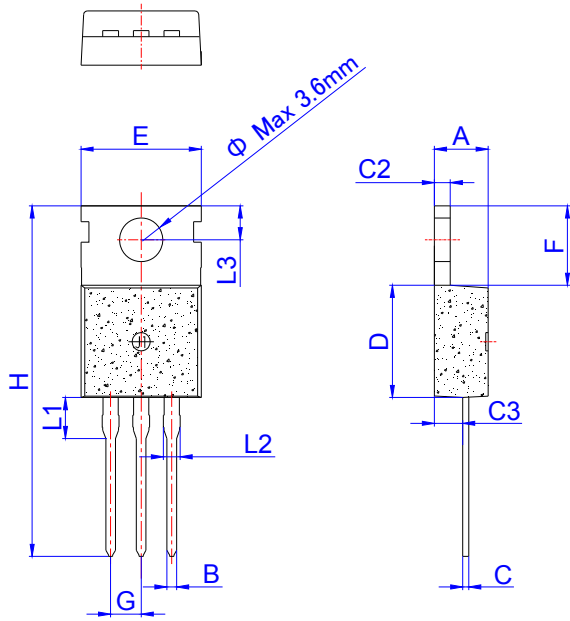
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



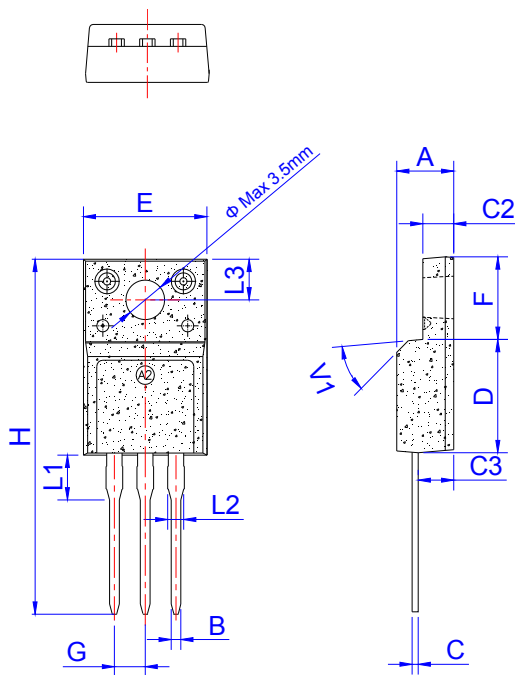
TO-220B Non-Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

PACKAGE MECHANICAL DATA

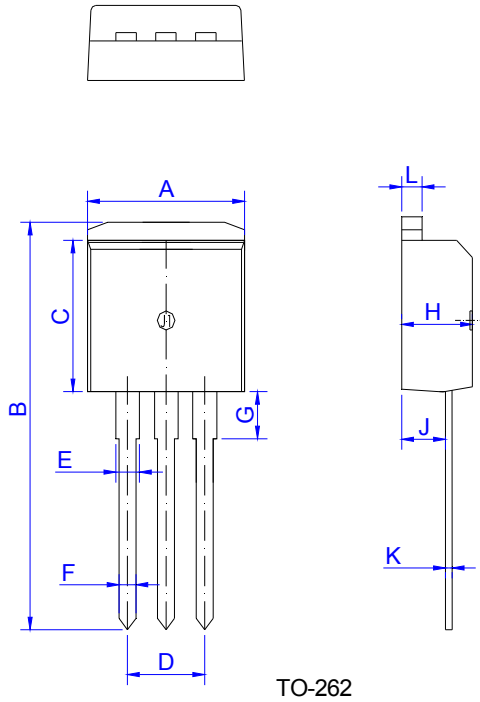


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	



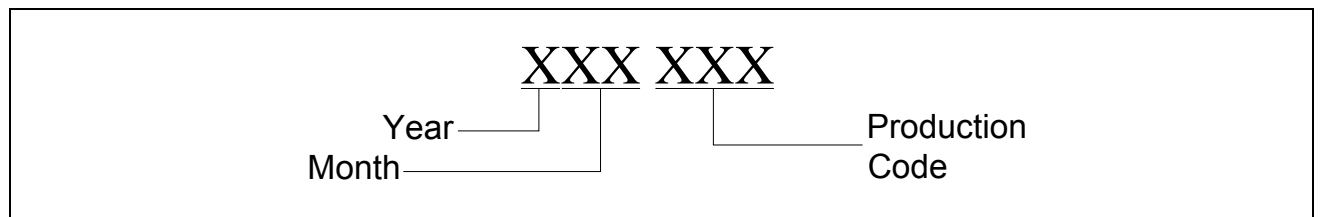
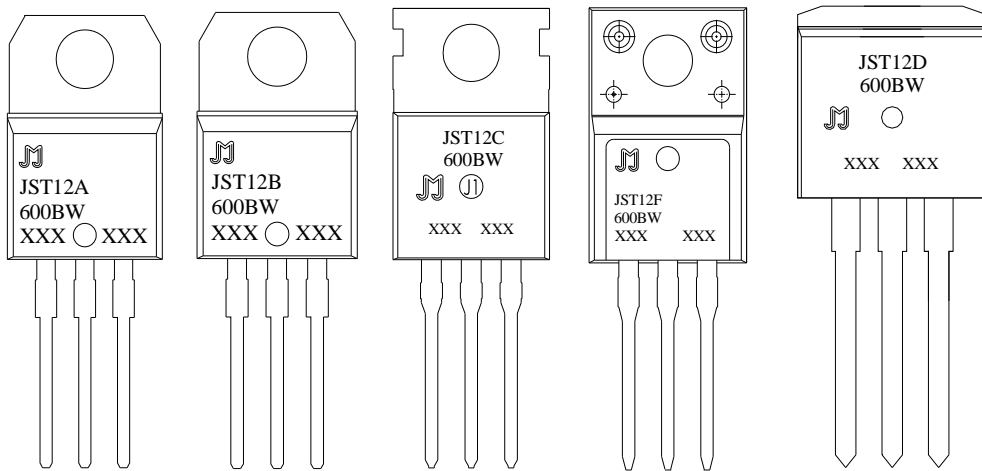
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.95		10.20	0.392		0.402
B	23.25		23.45	0.915		0.923
C	8.90		9.10	0.35		0.358
D	5.00		5.20	0.197		0.205
E	1.20		1.35	0.047		0.053
F	0.80		0.85	0.031		0.033
G	3.30		3.60	0.130		0.142
H	4.45		4.55	0.175		0.179
J	2.50		2.70	0.098		0.106
K	0.38		0.42	0.015		0.017
L	1.25		1.29	0.049		0.051

MARKING



PACKAGE INFORMATION

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	TUBE	50	1,000	8,000
TO-220B	TUBE	50	1,000	8,000
TO-220C	TUBE	50	1,000	8,000
TO-220F	TUBE	50	1,000	8,000
TO-262	TUBE	50	1,000	8,000
PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-262	TAPING	800	4,000	13 inch

FIG.1 Maximum power dissipation versus RMS on-state current

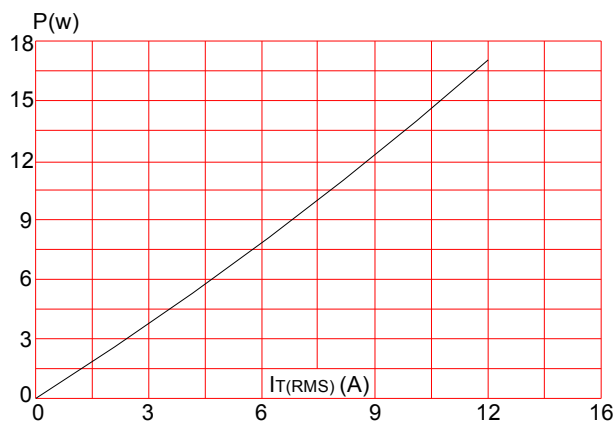


FIG.3: Surge peak on-state current versus number of cycles

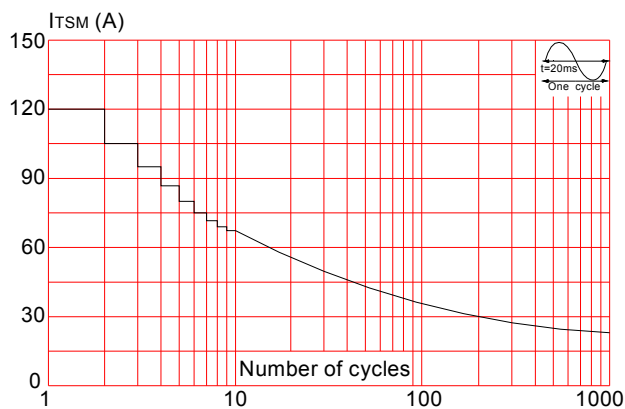


FIG.2: RMS on-state current versus case temperature

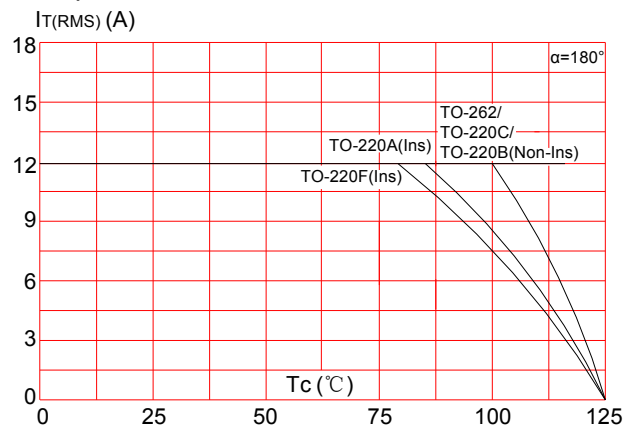


FIG.4: On-state characteristics (maximum values)

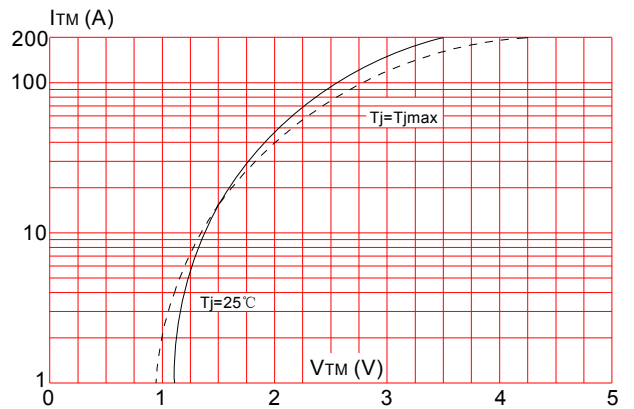


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($dI/dt(I-II-III) < 50\text{A}/\mu\text{s}$)

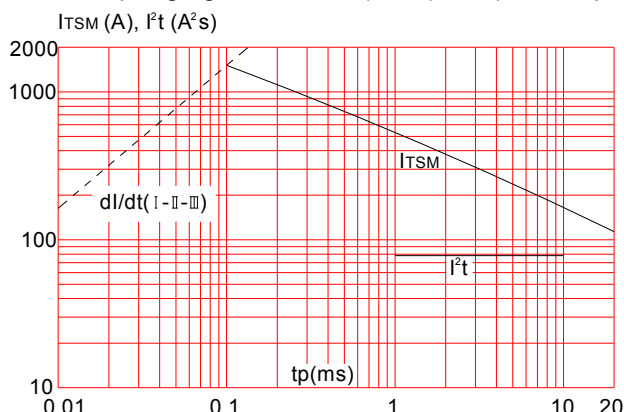
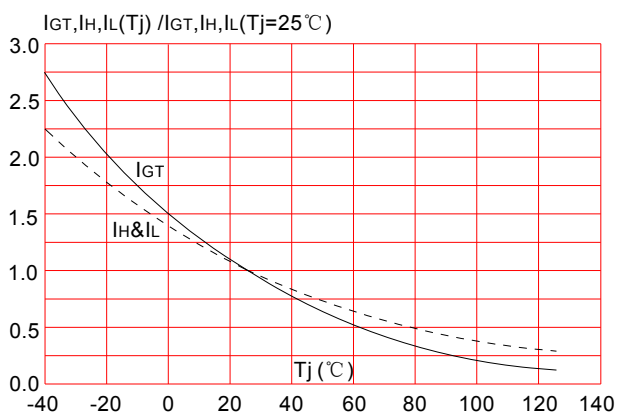



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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