


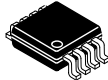
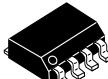


Microtriggered low power thyristor

Features

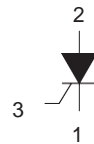
- $I_{T(AV)}$: 0.3 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A

Outline

- Non-Insulated Type
- Glass Passivation Type

	DFN-8* D SUFFIX HT03ARDZ-12
	MSOP-8 M SUFFIX HT03ARMZ-12
	SOP-8 R SUFFIX HT03ARZ-12
	TO92 M SUFFIX HT03AM-12
	TO-92-3L T SUFFIX HT03ARTZ-12

(Package name:TO-92-3L)



1. Cathode
2. Anode
3. Gate

Applications

Leakage protector, timer, and gas igniter

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak reverse voltage	V_{RRM}	600	V
Non-repetitive peak reverse voltage	V_{RSM}	800	V
DC reverse voltage	$V_{R(DC)}$	480	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	800	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	480	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	0.47	A	
Average on-state current	$I_{T(AV)}$	0.3	A	Commercial frequency, sine half wave 180° conduction, $T_a = 47^\circ\text{C}$
Surge on-state current	I_{TSM}	20	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	1.6	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	0.5	W	
Average gate power dissipation	$P_{G(AV)}$	0.1	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	0.3	A	
Junction temperature	T_j	-40 to +110	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +125	$^\circ\text{C}$	
Mass	—	0.23	g	Typical value

Notes: 1. With gate to cathode resistance $R_{GK} = 1\text{ k}\Omega$.

Electrical Characteristics

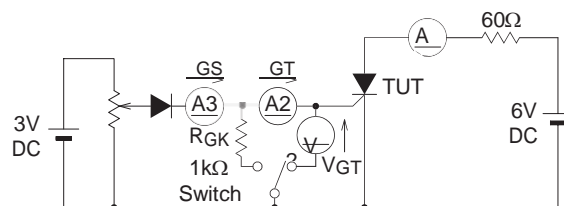
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	0.1	mA	$T_j = 110^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.1	mA	$T_j = 110^\circ\text{C}$, V_{DRM} applied, $R_{GK} = 1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.8	V	$T_a = 25^\circ\text{C}$, $I_{TM} = 4\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 110^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 1\text{ k}\Omega$
Gate trigger current	I_{GT}	1	—	100 ^{Note2}	μA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
Holding current	I_H	—	1.5	3	mA	$T_j = 25^\circ\text{C}$, $V_D = 12\text{ V}$, $R_{GK} = 1\text{ k}\Omega$
Thermal resistance	$R_{th(j-a)}$	—	—	180	$^\circ\text{C/W}$	Junction to ambient

Notes: 2. Please refer to the last letter of the model on the label for I_{GT} value. If special I_{GT} values are required, select item D or E in the table below. If you need a specified I_{GT} value, contact the manufacturer.

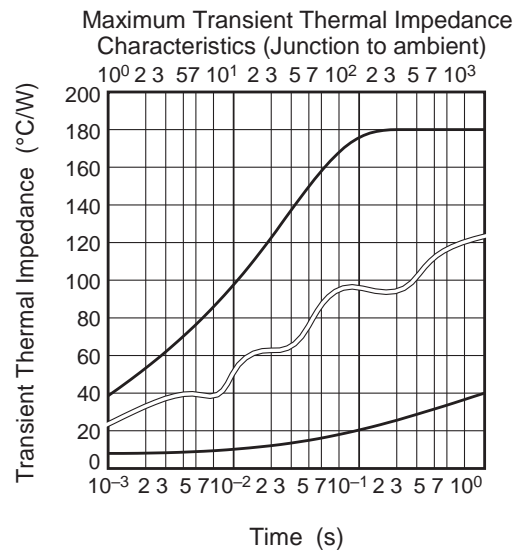
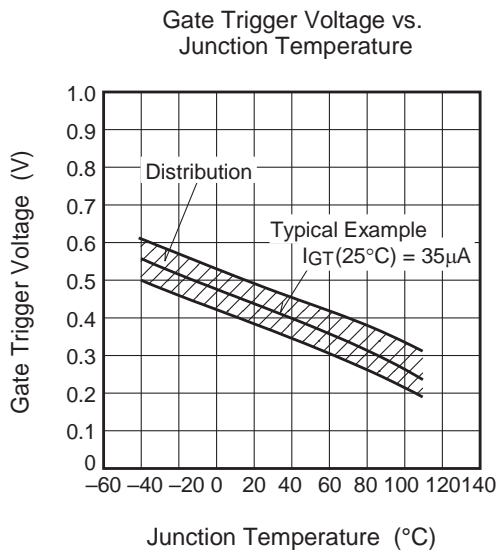
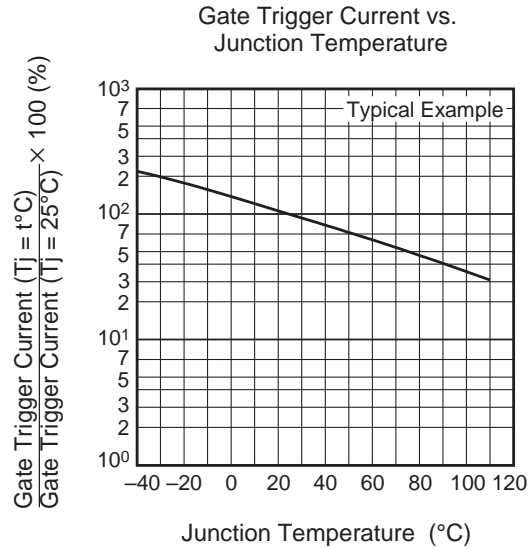
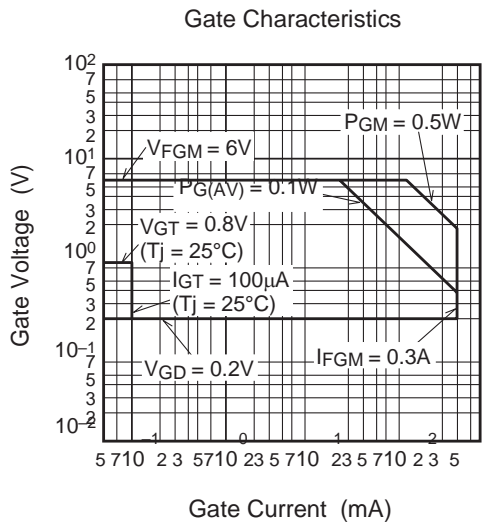
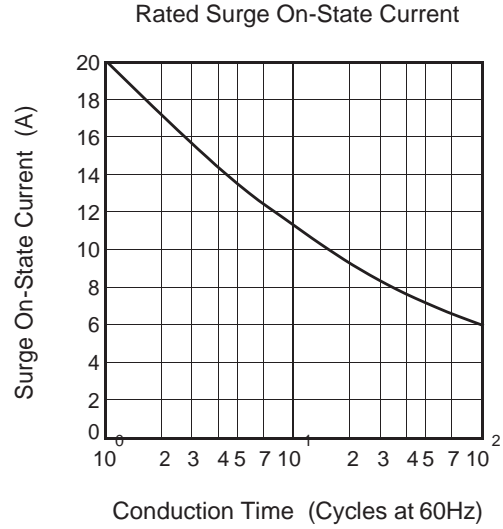
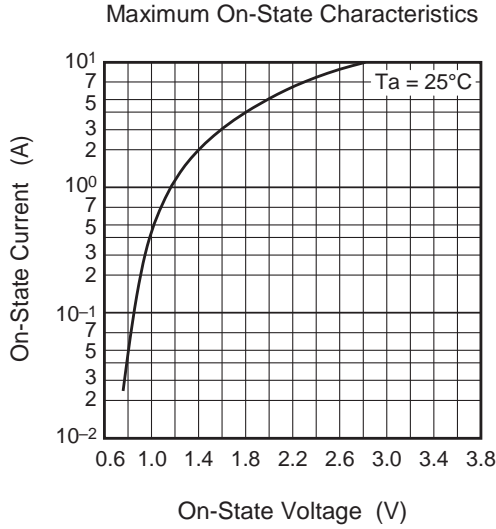
Item	A	B	C	D	E
$I_{GT} (\mu\text{A})$	10 to 20	20 to 30	30 to 40	10 to 40	1 to 100

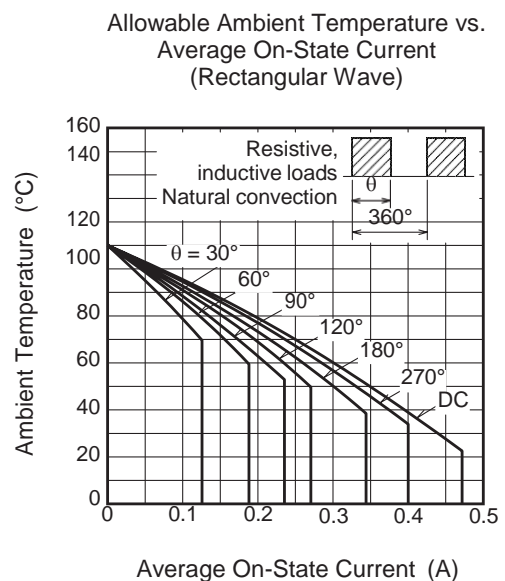
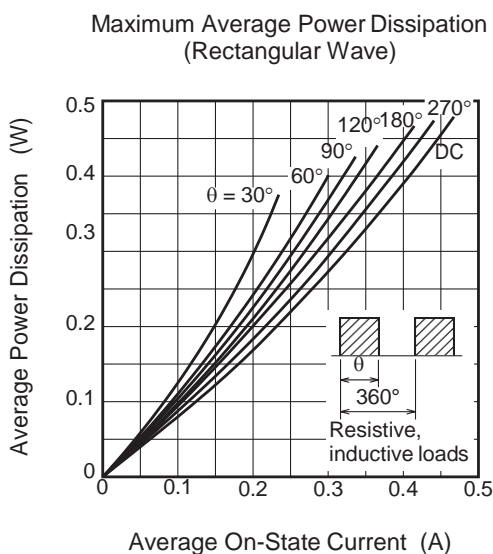
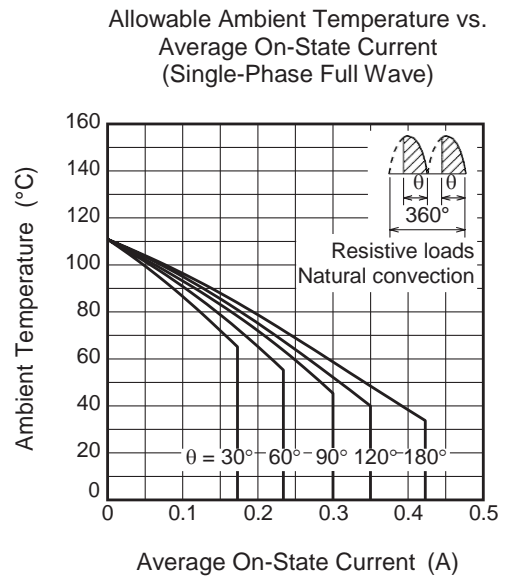
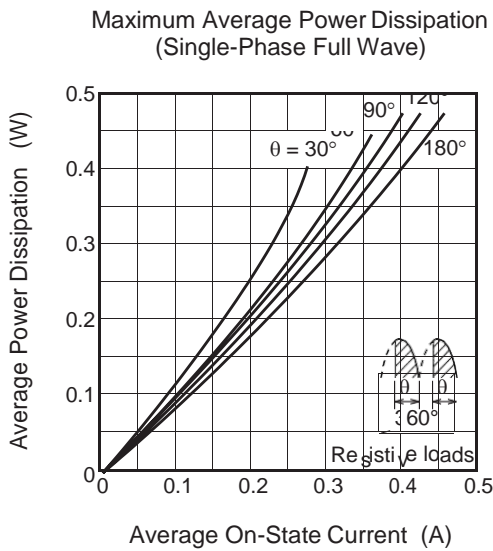
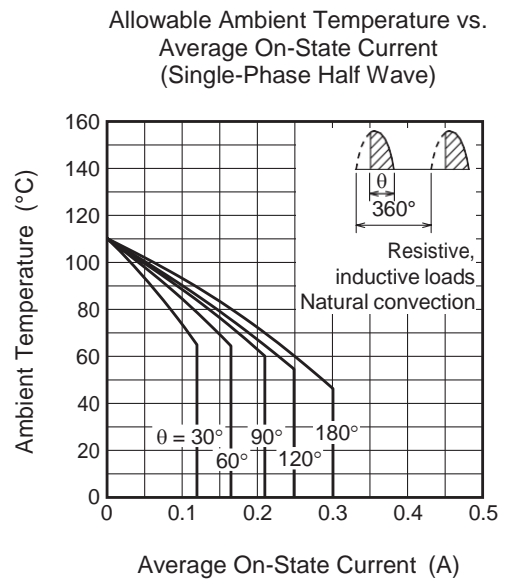
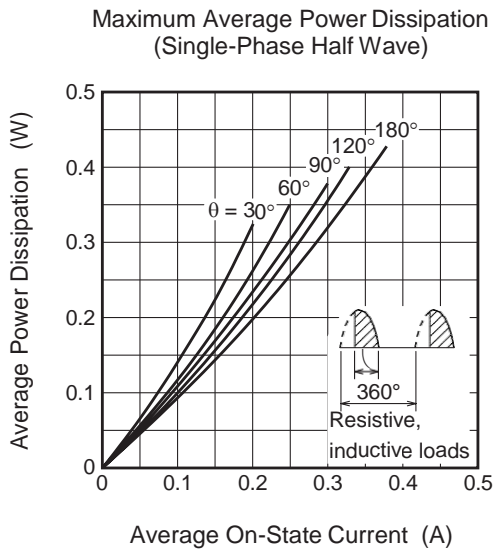
The above values do not include the current flowing through the $1\text{ k}\Omega$ resistance between the gate and cathode.

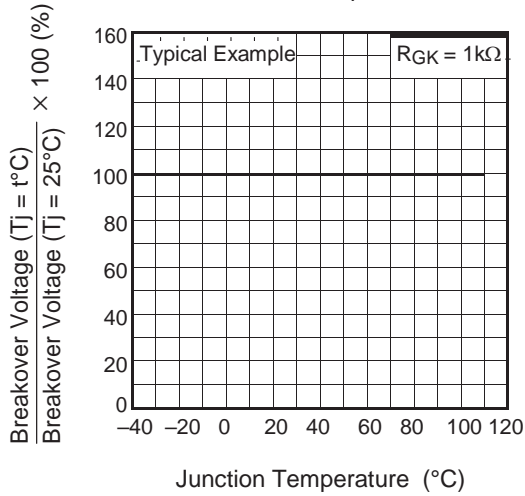
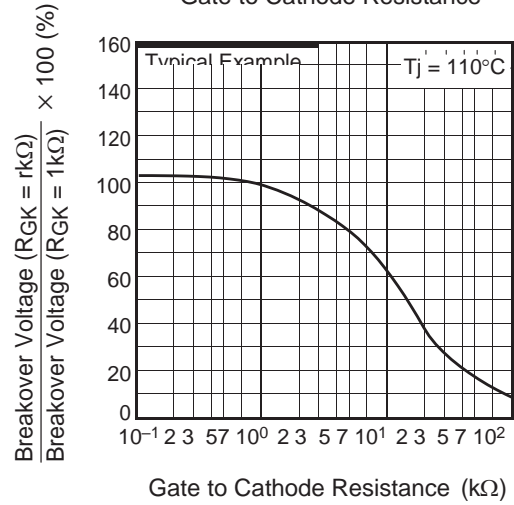
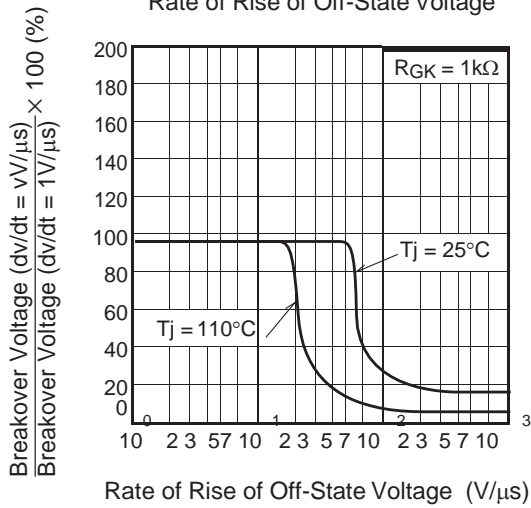
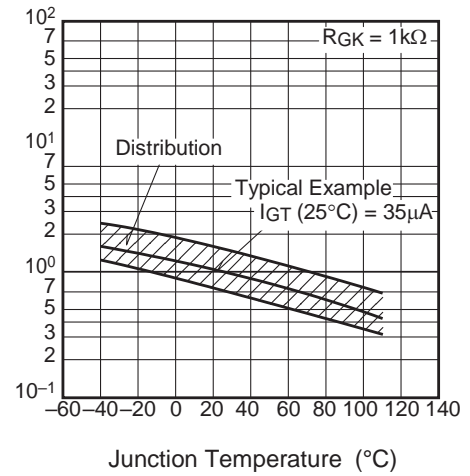
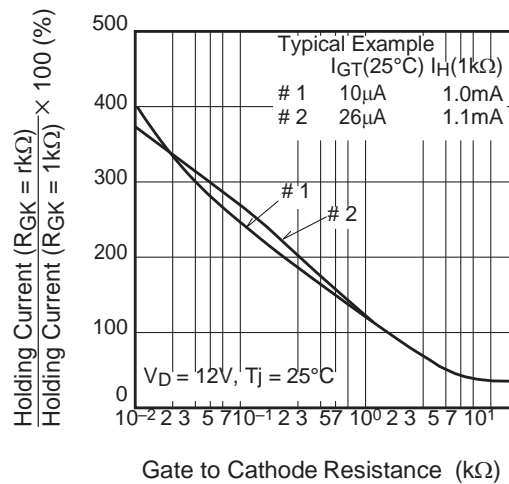
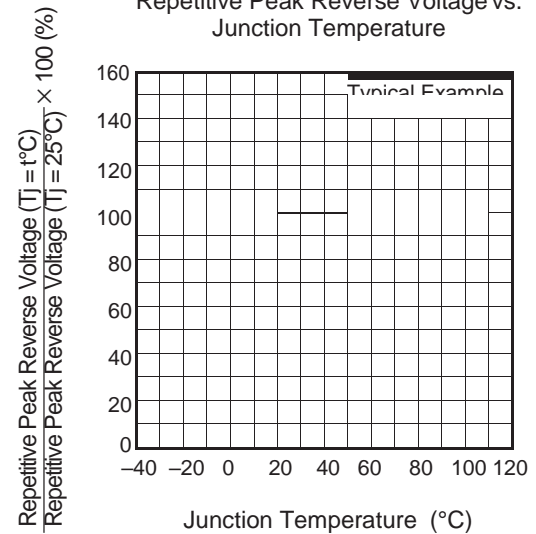
3 I_{GT} , V_{GT} measurement circuit.

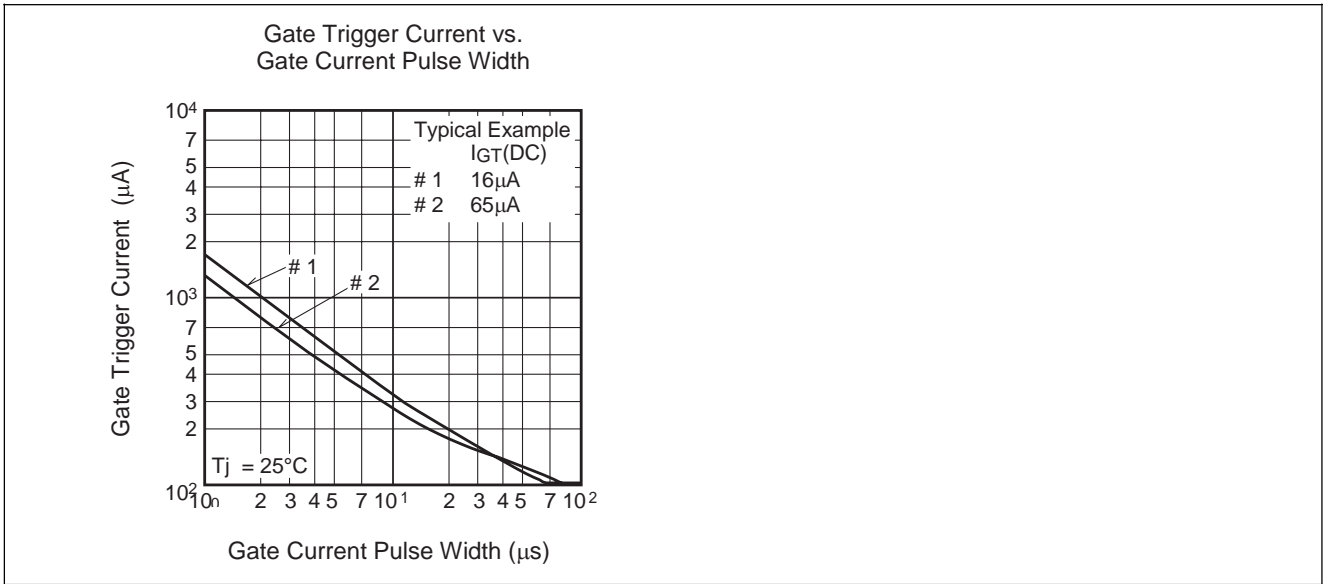


Switch 1 : I_{GT} measurement
 Switch 2 : V_{GT} measurement
 (Inner resistance of voltage meter is about $1\text{ k}\Omega$)

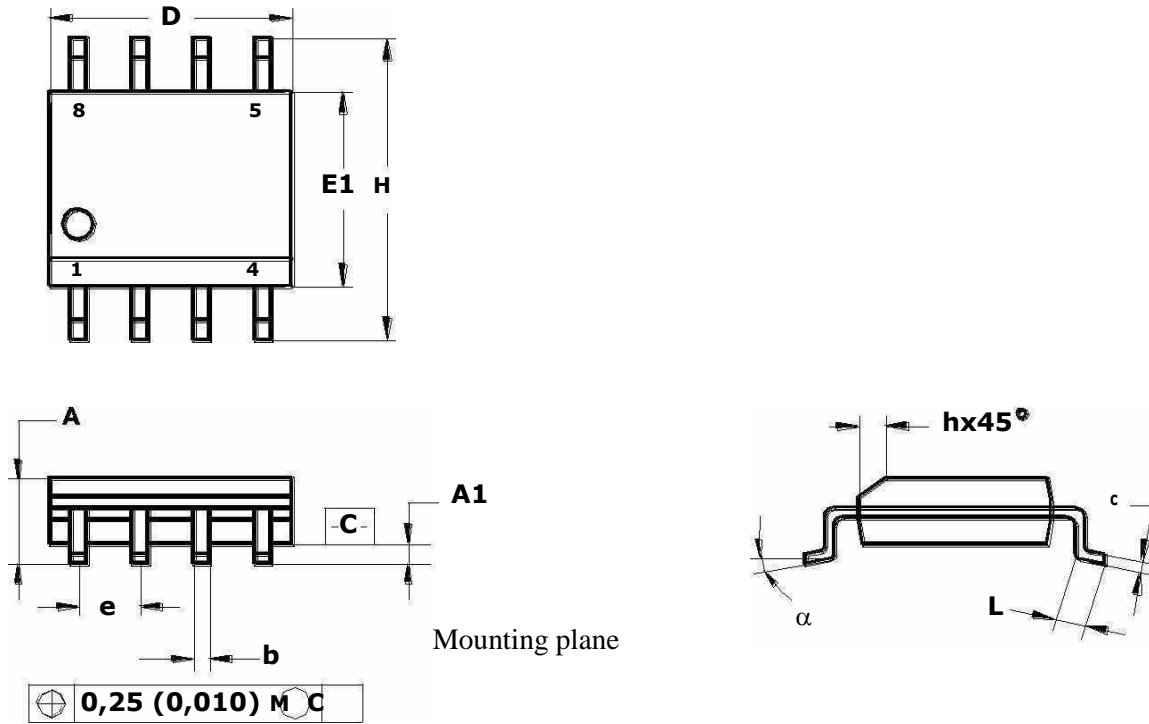
Performance Curves




Breakover Voltage vs. Junction Temperature

Breakover Voltage vs. Gate to Cathode Resistance

Breakover Voltage vs. Rate of Rise of Off-State Voltage

Holding Current vs. Junction Temperature

Holding Current vs. Gate to Cathode Resistance

Repetitive Peak Reverse Voltage vs. Junction Temperature




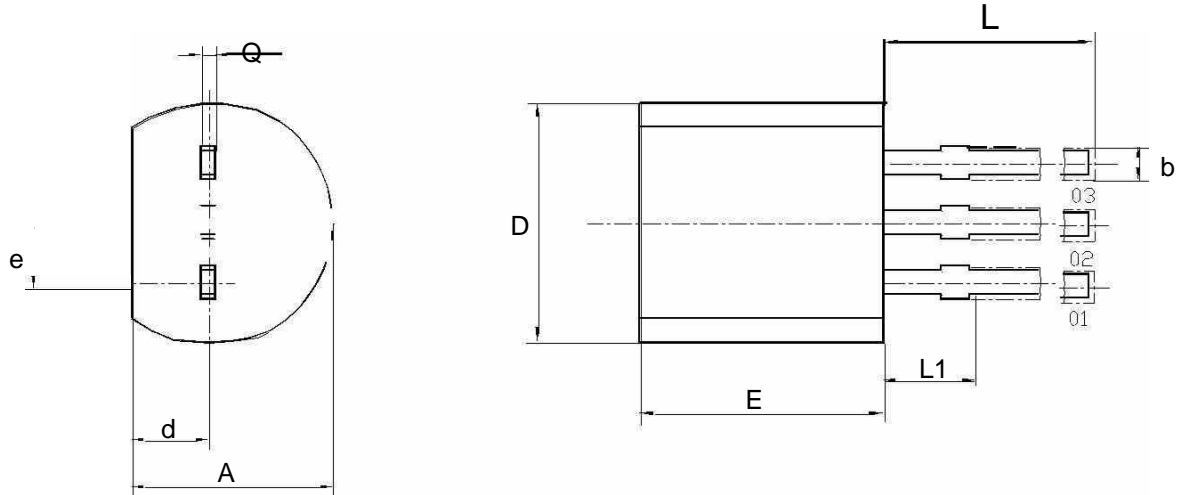
SOP8 150mil



Note – Dimensions D, E1 do not include the value of fin, which should not exceed 0,25 (0,010) per side.

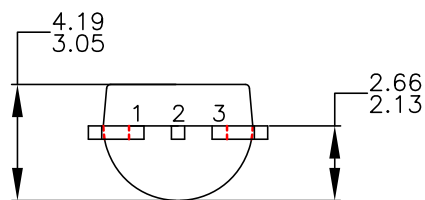
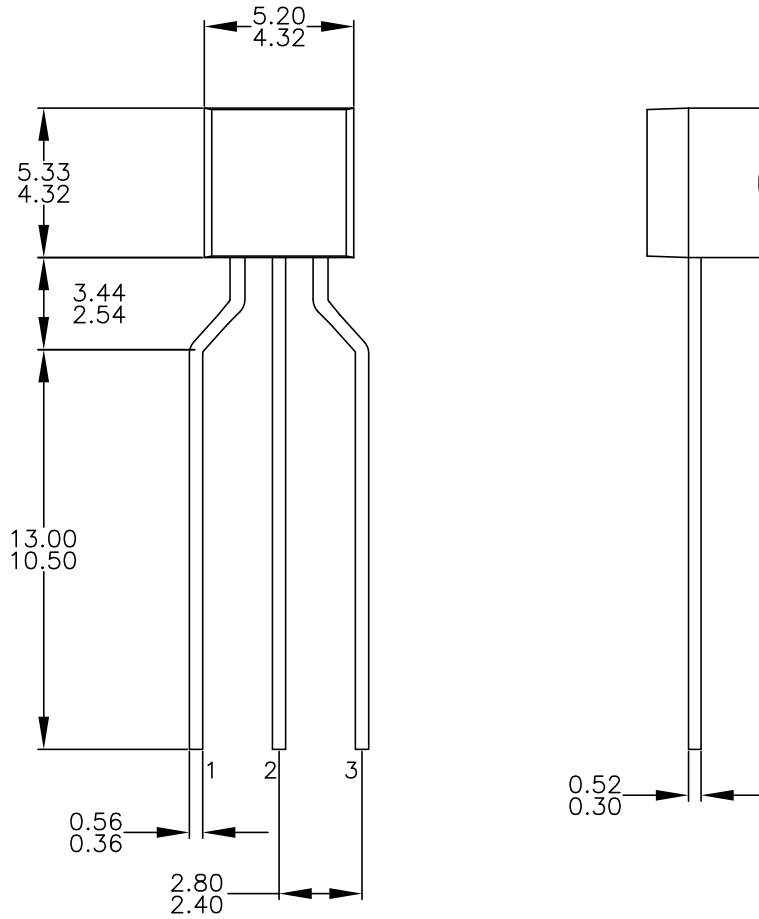
	D	E1	H	b	e	α	A	A1	c	L	h
Millimeters											
min	4.80	3.80	5.80	0.33		0°	1.35	0.10	0.19	0.41	0.25
max	5.00	4.00	6.20	0.51	1.27	8°	1.75	0.25	0.25	1.27	0.50
Inches											
min	0.1890	0.1497	0.2284	0.013		0°	0.0532	0.0040		0.016	0.0099
max	0.1968	0.1574	0.2440	0.020	0.100	8°	0.0688	0.0090		0.050	0.0196

TO92



Dimensions	mm	
	min	max
E	4,6	5,1
b	-	0,5
D	4,6	5
d	1,25	1,65
A	3,5	3,8
e	1,2573	1,2827
L	12,5	14,5
L1	-	2
Q	-	0,5

TO-92-3L



NOTES: UNLESS OTHERWISE SPECIFIED

- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DRAWING CONFORMS TO ASME Y14.5M-2009.
- D. DRAWING FILENAME: MKT-ZA03FREY3.
- E. FAIRCHILD SEMICONDUCTOR.