

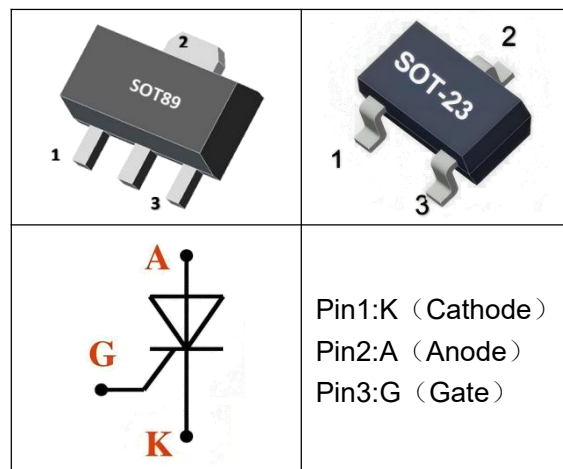


BT169 (B~H)

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GENERAL DESCRIPTION

Passivated, sensitive gate thyristors in a plastic envelope, intended for use in general purpose switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

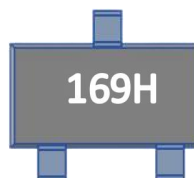


MARKING



SOT-89

BT169 =DeVice Code
H : Voltage grade (B~H)
XXXX=Date Code



SOT-23

169=DeVice Code
H: Voltage grade (B~H)

❖ Marking voltage grade reference data

PARAMETER	SYMBOL	BT169B	BT169D	BT169E	BT169G	BT169H	UNIT
		MAX	MAX	MAX	MAX	MAX	MAX
Repetitive Peak Off-State Voltages	V_{DRM}, V_{RRM}	200	400	500	600	800	V
Average On-State Current	$I_{T(AV)}$	0.5	0.5	0.5	0.5	0.5	A
RMS On-State Current	$I_{T(RMS)}$	0.8	0.8	0.8	0.8	0.8	A
Non-Repetitive Peak On-State Current	I_{TSM}	8	8	8	8	8	A

THERMAL RESISTANCES

PARAMETER		SYMBOL	MAX	UNIT
Junction to Ambient	SOT-89	θ_{JA}	180	°C/W
	SOT-23		320	



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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltages (Note 2)	BT169B	V_{DRM}, V_{RRM}	200	V
	BT169D		400	
	BT169E		500	
	BT169G		600	
	BT169H		800	
Peak Gate Voltage		V_{GM}	5	V
Peak Reverse Gate Voltage		V_{RGM}	5	V
Peak Gate Current		I_{GM}	1	A
Average On-State Current (Half Sine Wave, $T_{LEAD} \leq 83^{\circ}\text{C}$)		$I_{T(AV)}$	0.5	A
RMS On-State Current (All Conduction Angles)		$I_{T(RMS)}$	0.8	A
Non-Repetitive Peak On-State Current (Half Sine Wave, $T_J=25^{\circ}\text{C}$ Prior to Surge)	$t=10\text{ms}$	I_{TSM}	8	A
	$t=8.3\text{ms}$		9	A
$I^2 t$ For Fusing ($t=10\text{ms}$)		$I^2 t$	0.32	$\text{A}^2 \text{S}$
Repetitive Rate of Rise of On-State Current After Triggering ($I_{TM}=2\text{A}, I_G=10\text{mA}, dI_G/dt=100\text{mA}/\mu\text{s}$)		dI_T/dt	50	$\text{A}/\mu\text{s}$
Peak Gate Power		P_{GM}	2	W
Average Gate Power (Over any 20 ms period)		$P_{G(AV)}$	0.1	W
Junction Temperature		T_J	+125	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^{\circ}\text{C}$

■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	I _{GT}	V _D =12V, I _T =10 mA, gate open circuit	25		200	μA
Latching Current	I _L	V _D =12V, I _{GT} =0.5mA, R _{GK} =1k		2	6	mA
Holding Current	I _H	V _D =12V,I _{GT} =0.5mA, R _{GK} =1k		2	5	mA
On-State Voltage	V _T	I _T =1A		1.2	1.35	V
Gate Trigger Voltage	V _{GT}	V _D =12V, I _T =10mA	0.2	0.5	0.8	V
		V _D =V _{DRM(MAX)} , I _T =10mA, T _J =125 C	0.2	0.3	0.8	
Off-State Leakage Current	I _{DRM}	V _D =V _{DRM(max)} ,V _R =V _{RRM(max)} T _J =125℃		0.05	0.1	mA
	I _{RRM}			0.05	0.1	
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage	dV _D /dt	V _{DM} =67% V _{DRM(MAX)} , T _J =125 C, exponential waveform, R _{GK} =1k	500	800		V/μs
Gate Controlled Turn-on Time	t _{gt}	I _{TM} =2A,V _D =V _{DRM(MAX)} , I _G =10mA, diG/dt=0.1A/ s		2		μs
Circuit Commutated Turn-Off Time	t _Q	V _D =67% V _{DRM(MAX)} , T _J =125 C, I _{TM} =1.6A,V _R =35V, di _{TM} /dt=30A/ s, V _D /dt=2V/ s, R _{GK} =1k		100		μs

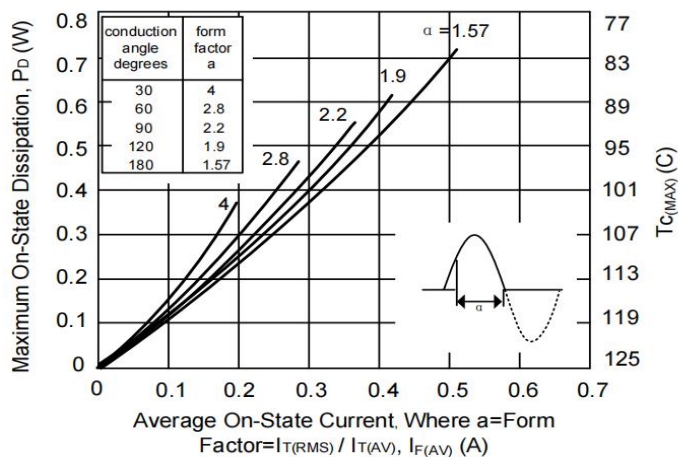


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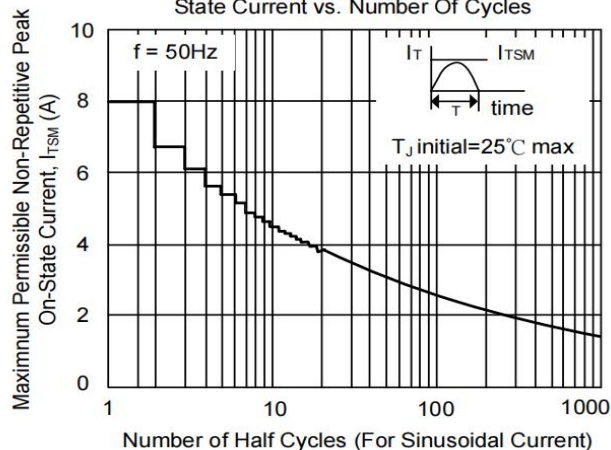
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■ TYPICAL CHARACTERISTICS (1)

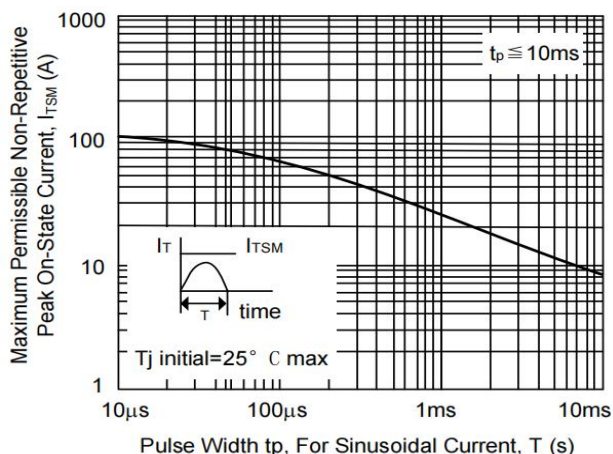
Maximum On-State Dissipation vs. Average On-State Current



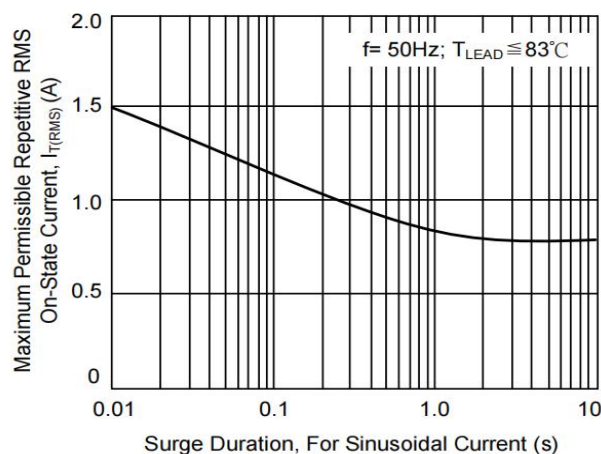
Maximum Permissible Non-Repetitive Peak On-State Current vs. Number Of Cycles



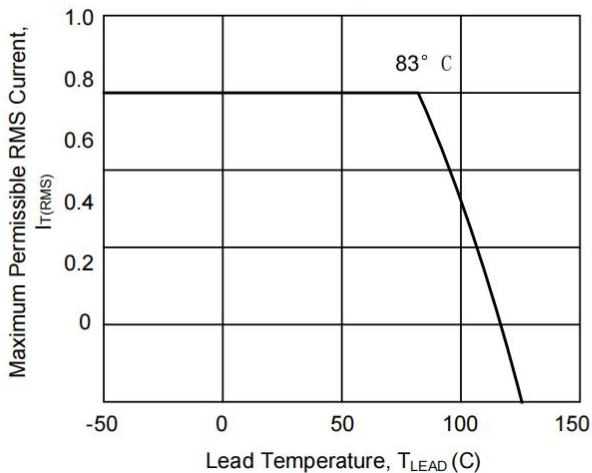
Maximum Permissible Non-Repetitive Peak On-State Current vs. Pulse Width t_p , For Sinusoidal Current



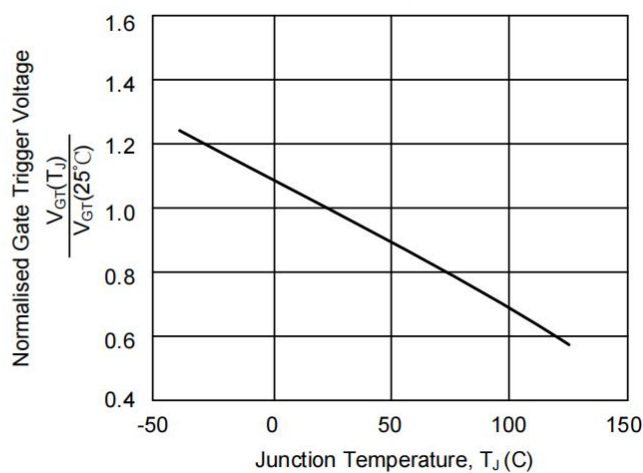
Maximum Permissible Repetitive RMS On-State Current vs. Surge Duration, For Sinusoidal Currents



Maximum Permissible RMS Current vs. Lead Temperature



Normalised Gate Trigger Voltage vs. Junction Temperature

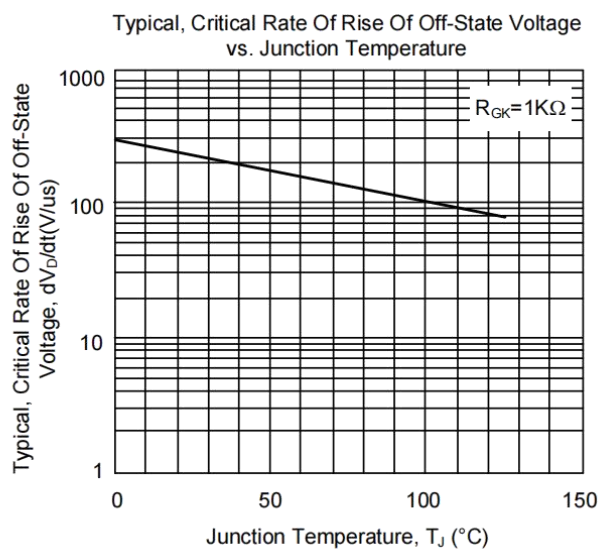
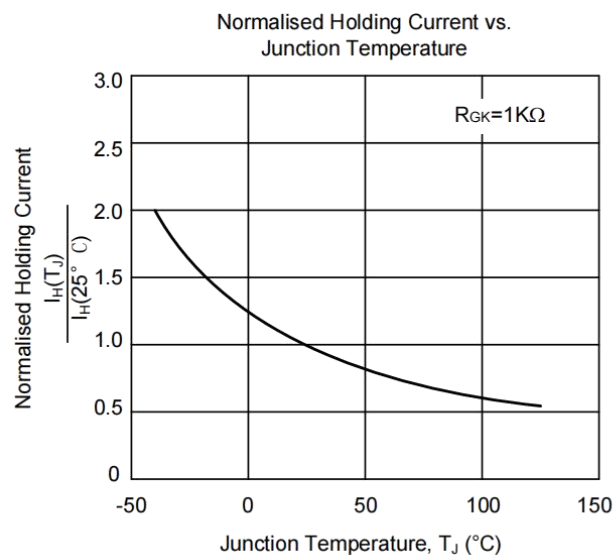
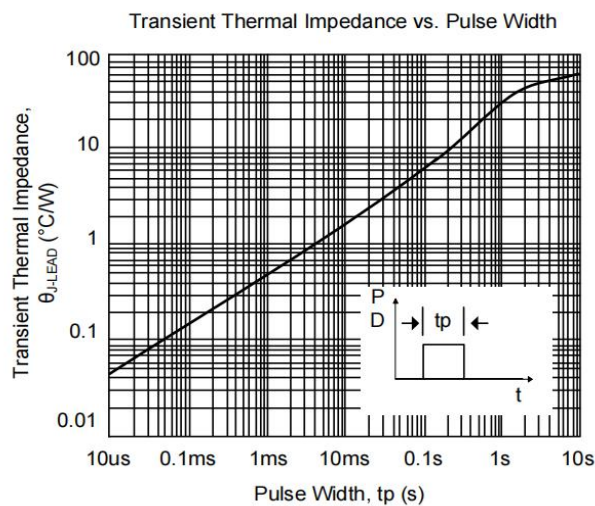
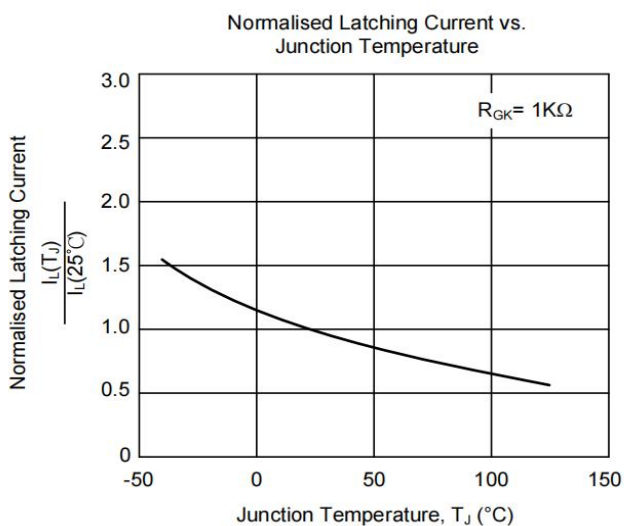
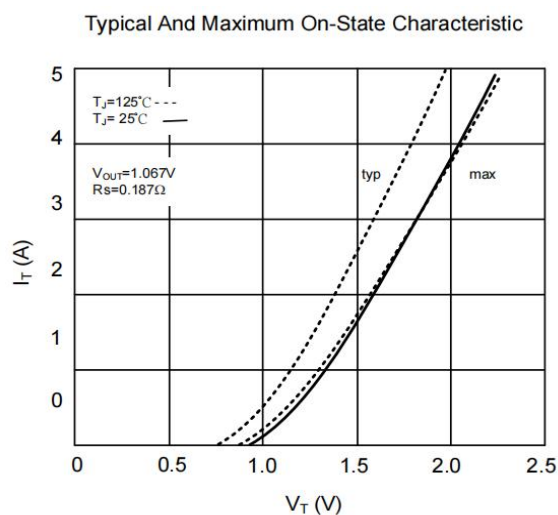
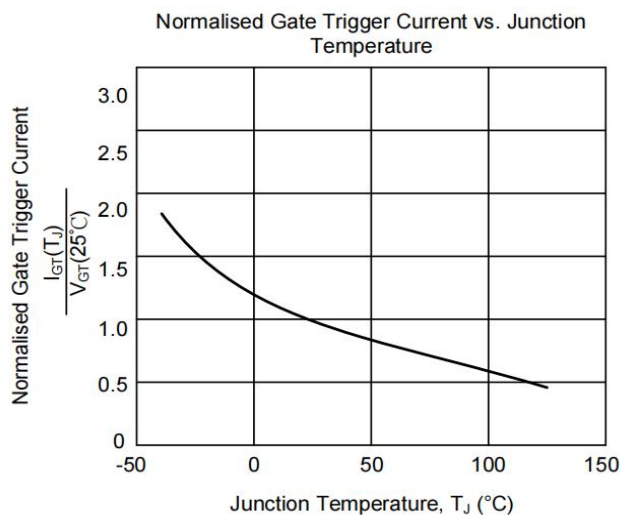




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■ TYPICAL CHARACTERISTICS (2)

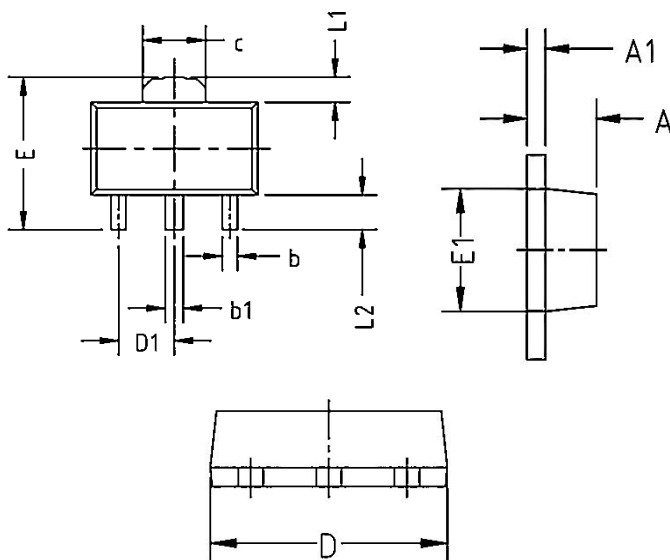




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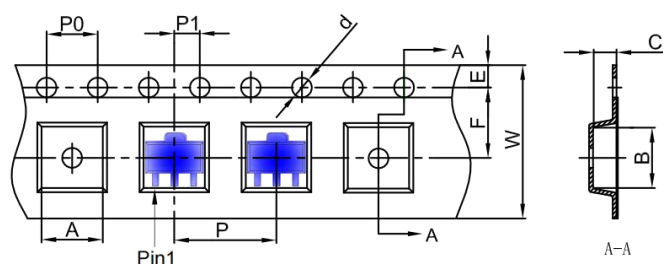
■ SOT - 89 PACKAGE OUTLINE DIMENSIONS



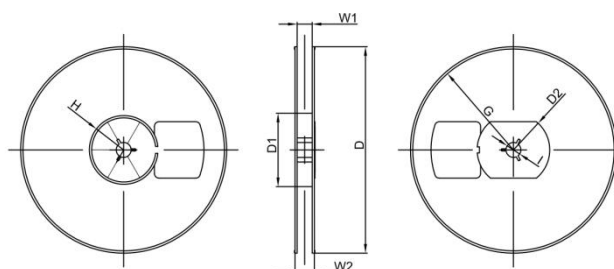
PKG	COMMON DIMENSION(MM)		
	SOT-89		
Symbol	MIN	MON	MAX
A	1.450	1.500	1.550
A1	0.350	0.400	0.450
b	0.350	0.400	0.48
b1	0.430	0.480	0.550
C	1.500	1.550	1.650
D	4.450	4.550	4.700
D1	1.470	1.500	1.550
E	4.100	4.200	4.300
E1	2.500	2.550	2.650
L1	0.650	0.700	0.750
L2	0.900	0.950	1.000

■ SOT89 PACKAGING INFORMATION

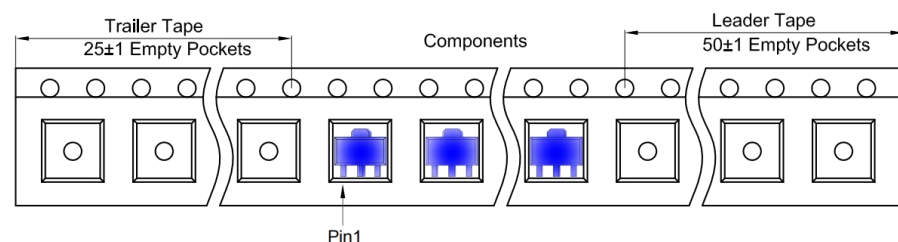
SOT-89 Embossed Carrier Tape



SOT-89 Reel



SOT-89 Tape Leader and Trailer



REEL	Reel Size
1000 pcs	7 inch

Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

Dimensions are in millimeter

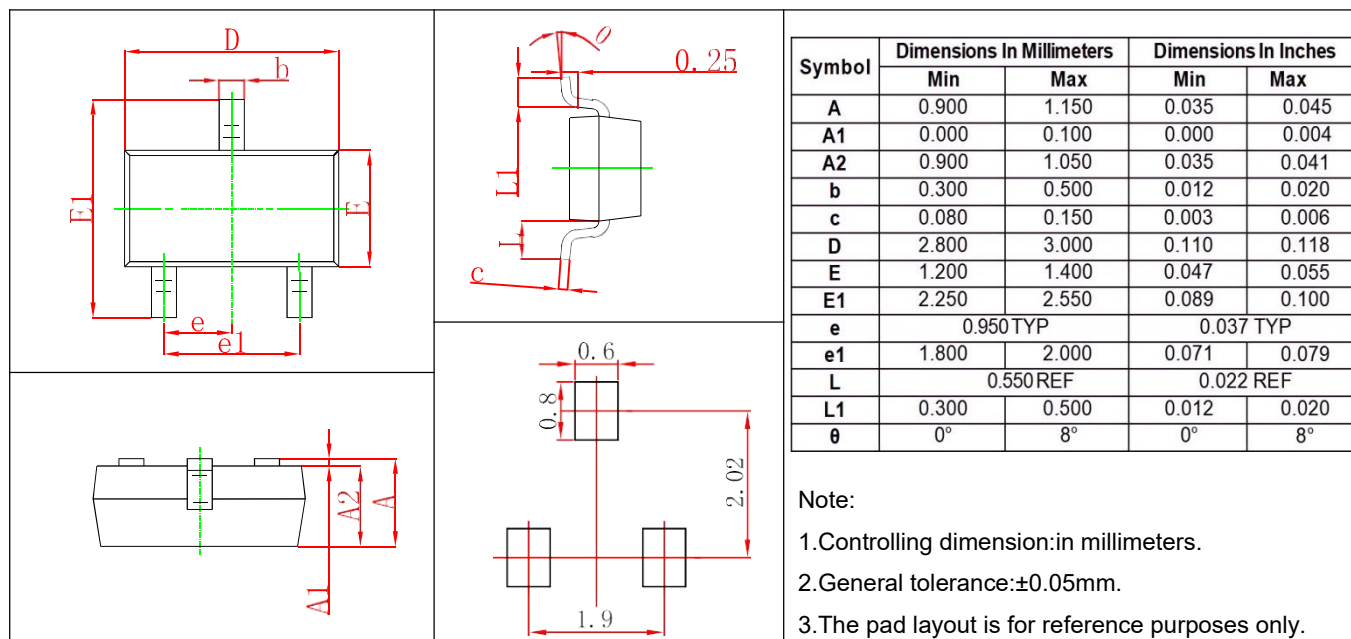
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50



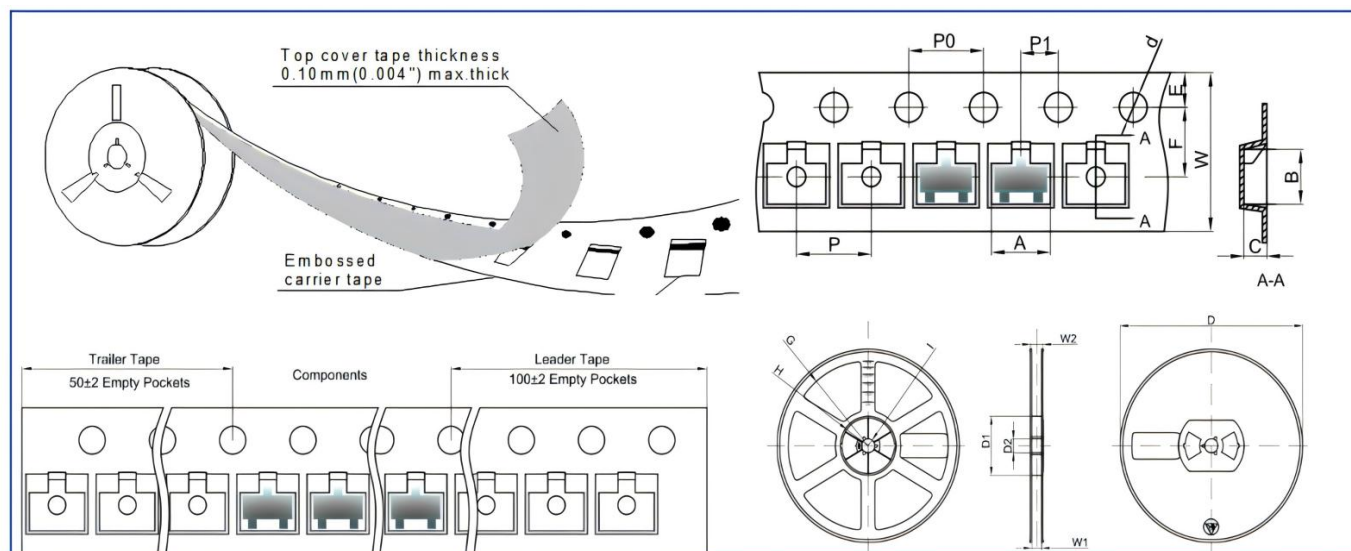
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■ SOT23 PACKAGE OUTLINE DIMENSIONS



■ REEL PACKING



Dimensions are in millimeter

PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Option	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13" Dia	Φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	