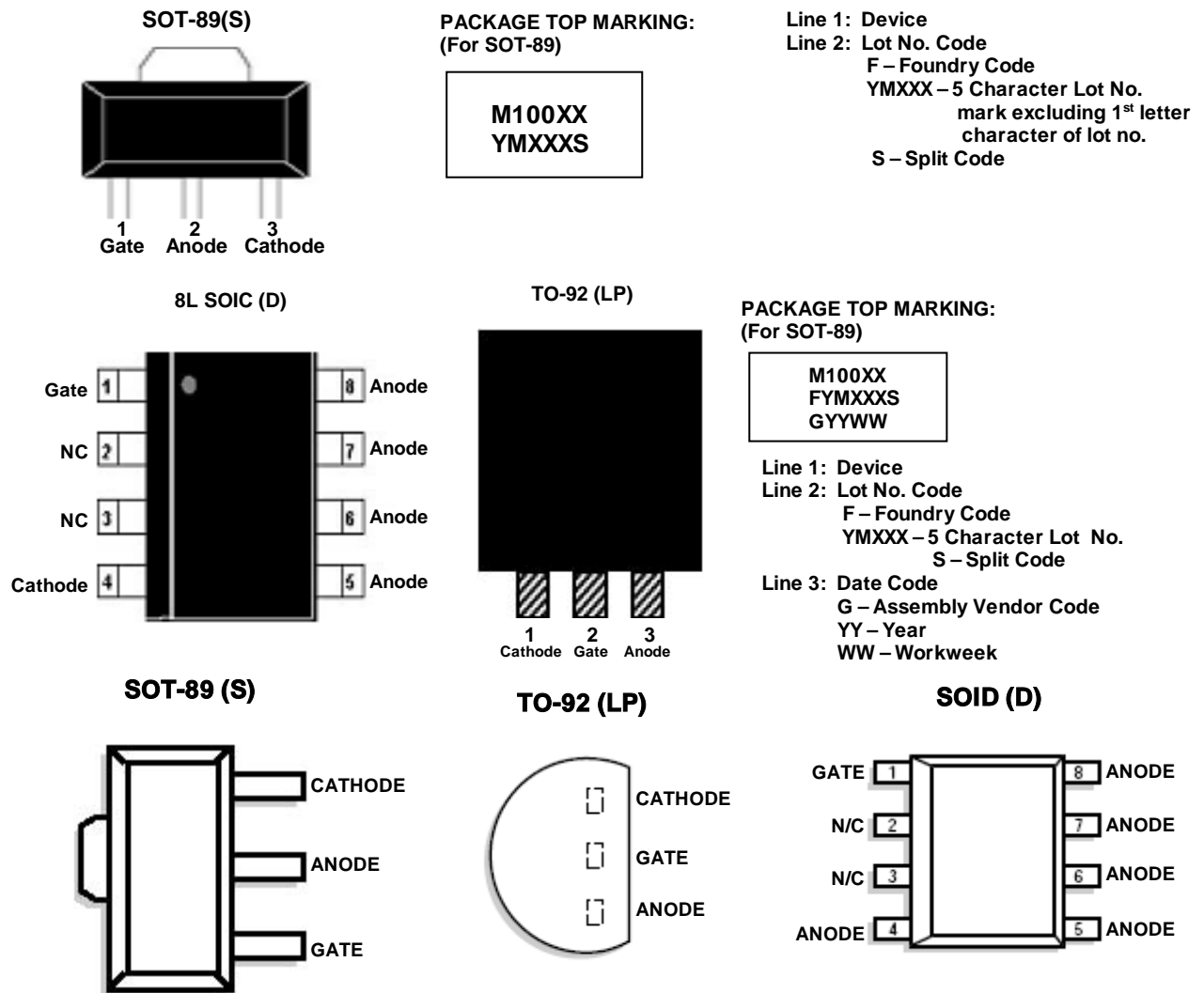


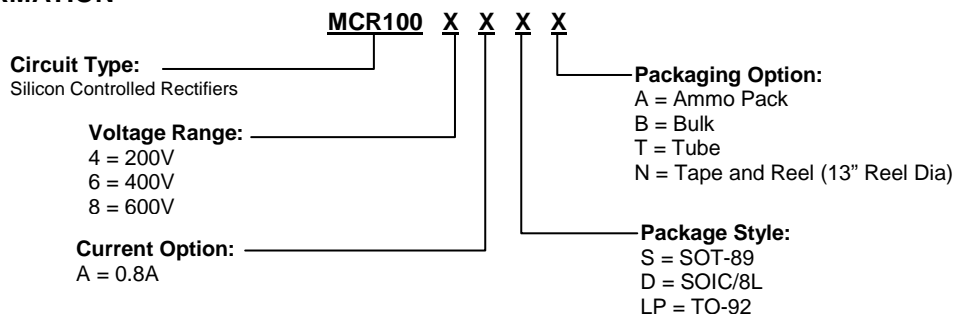
**FEATURES**

- .. Driven directly with IC and MOS device.
- .. Feature proprietary, void –free glass passivate chips.
- .. Available in voltage ratings from 200 to 600 volts. (VDRM and VRRM)
- .. Sensitive gate trigger current.
- .. Designed for high volume, line-powered control application in relay lamp drivers for large thyristors.

**PIN CONFIGURATION – Top View**



**ORDERING INFORMATION**



**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25°C)**

Parameter	Symbol	Value	Unit
Peak Repetitive Off-State Voltage <sup>4)</sup> (T <sub>J</sub> = -40 °C to 110 °C, Sine Wave, 50 to 60 Hz, Gate Open) MCR100-4U MCR100-6U MCR100-8U	V <sub>DRM</sub> , V <sub>RRM</sub>	200 400 600	V
On-State RMS Current (T <sub>C</sub> = 80 °C) 180° Conduction Angles	I <sub>T(RMS)</sub>	0.8	A
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave, 60 Hz, T <sub>J</sub> = 25 °C)	I <sub>TSM</sub>	10	A
Circuit Fusing Considerations (t = 8.3 ms)	I <sub>2t</sub>	0.415	A <sub>2</sub> S
Forward Peak Gate Power (Pulse Width ≤ 1 μs)	P <sub>GM</sub>	0.1	W
Forward Average Gate Power (t = 8.3 ms)	P <sub>G(AV)</sub>	0.1	W
Peak Gate Current – Forward (Pulse Width ≤ 1 μs)	I <sub>GM</sub>	1	A
Peak Gate Voltage – Reverse (Pulse Width ≤ 1 μs)	V <sub>GRM</sub>	5	V
Operating Junction Temperature Range	T <sub>J</sub>	-40 to + 110	°C
Storage Temperature Range	T <sub>S</sub>	-40 to + 150	°C

**CHARACTERISTICS at T<sub>a</sub> = 25°C**

Parameter	Symbol	Max.	Unit
Parameter Peak Forward or Reverse Blocking Current <sup>2)</sup> at V <sub>D</sub> = Rated V <sub>DRM</sub> and V <sub>RRM</sub> , R <sub>GK</sub> = 1 KΩ	I <sub>DRM</sub> , I <sub>RRM</sub>	10	μA
Peak Forward On-State Voltage <sup>1)</sup> at I <sub>TM</sub> = 1 A Peak	V <sub>TM</sub>	1.7	V
Gate Trigger Current <sup>3)</sup> at V <sub>AK</sub> = 7 V, R <sub>L</sub> = 100 Ω	I <sub>GT</sub>	200	μA
Holding Current <sup>2)</sup> at V <sub>AK</sub> = 7 V, Initiating Current = 20 mA T <sub>C</sub> = 25°C T <sub>C</sub> = - 40°C	I <sub>H</sub>	5 10	mA
Latch Current at V <sub>AK</sub> = 7 V, I <sub>g</sub> = 200 μA T <sub>C</sub> = 25°C T <sub>C</sub> = - 40°C	I <sub>L</sub>	10 15	mA
Gate Trigger Voltage <sup>3)</sup> at V <sub>AK</sub> = 7 V, R <sub>L</sub> = 100 Ω T <sub>C</sub> = 25°C T <sub>C</sub> = - 40°C	V <sub>GT</sub>	0.8 1.2	V

<sup>1)</sup> Indicates pulse test width ≤ 1 ms, duty cycle ≤ 1%

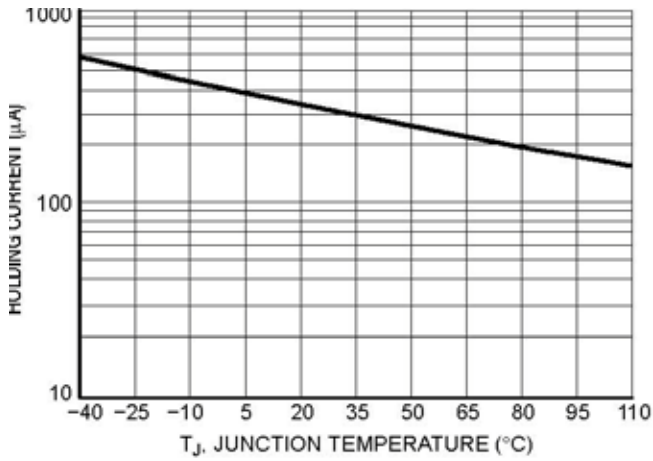
<sup>2)</sup> R<sub>GK</sub> = 1 KΩ included in measurement

<sup>3)</sup> Does not include R<sub>GK</sub> in measurement

<sup>4)</sup> V<sub>DRM</sub> and V<sub>RRM</sub> for all types can be applied on continuous basis. Ratings apply for zero negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

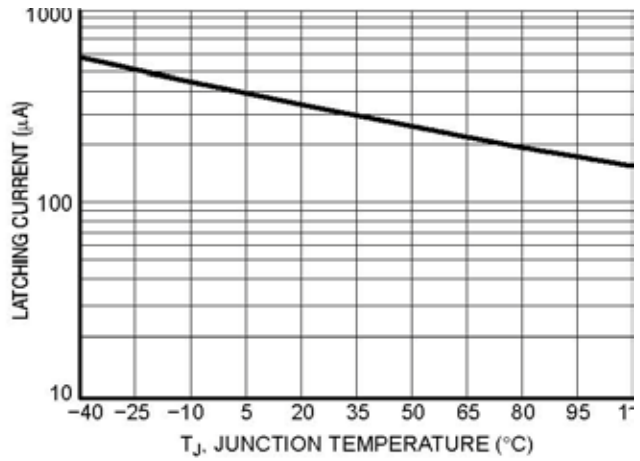
**TYPICAL PERFORMANCE CHARACTERISTICS**

**Figure 1. Typical Gate Trigger Current versus Junction Temperature**

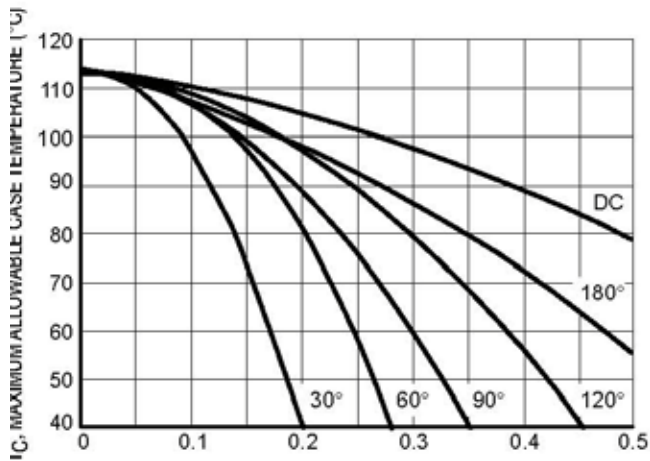


**Figure 3. Typical Holding Current versus Junction Temperature**

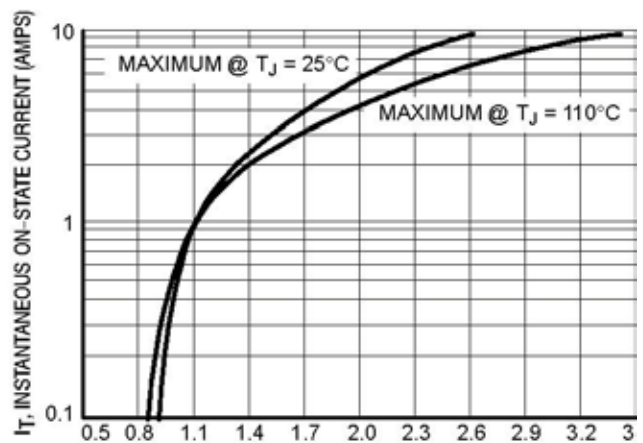
**Figure 2. Typical Gate Trigger Voltage versus Junction Temperature**



**Figure 4. Typical Latching Current versus Junction Temperature**



**Figure 5. Typical RMS Current Derating**

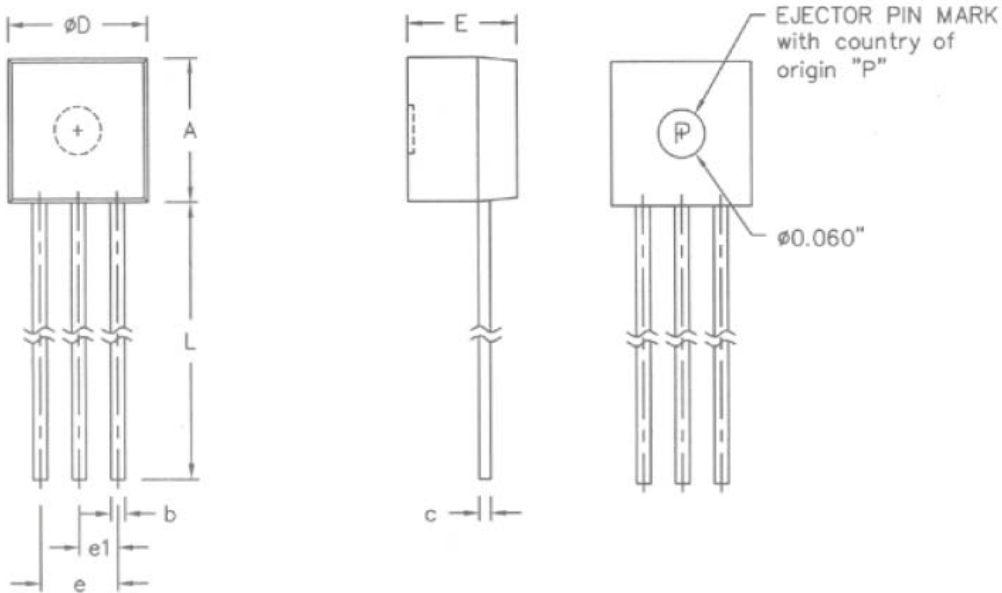


**Figure 6. Typical On-State Characteristics**



TO-92 PACKAGE DIMENSION

3-Lead TO-92 Plastic Package  
SLI Package Code: LP



SYMBOL	INCHES		
	MIN	NOM	MAX
A	0.176	0.180	0.184
b	0.015	0.018	0.022
c	0.014	0.015	0.020
$\phi D$	0.176	0.180	0.184
e	0.098	0.100	0.102
e1	0.048	0.050	0.052
E	0.136	0.140	0.144
j	0.166	0.170	0.174
L	0.530	0.550	0.570
S1	0.031	0.035	0.039

Notes:

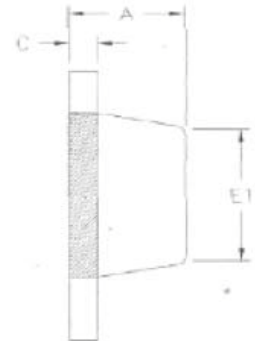
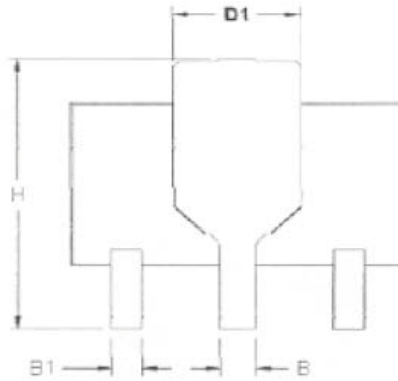
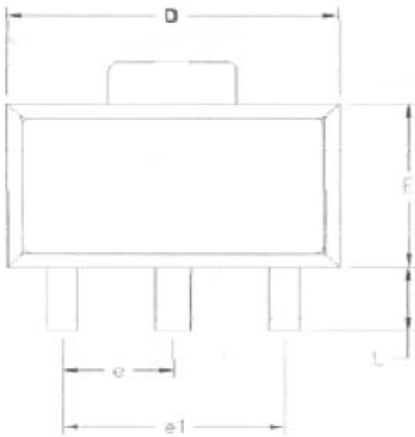
1. ALL DIMENSIONS IN INCHES
2. A MECHANICAL TOLERANCE OF  $\pm 0.002$  APPLIES TO ALL DIMENSIONS WHERE NO TOLERANCE IS EXPLICITLY GIVEN.
3. BASED FROM JEDEC TO-226 VARIATION AA OUTLINE



SOT-89 PACKAGE DIMENSION

3-Lead SOT-89 Plastic  
Surface Mounted Package

SLI Package Code: S



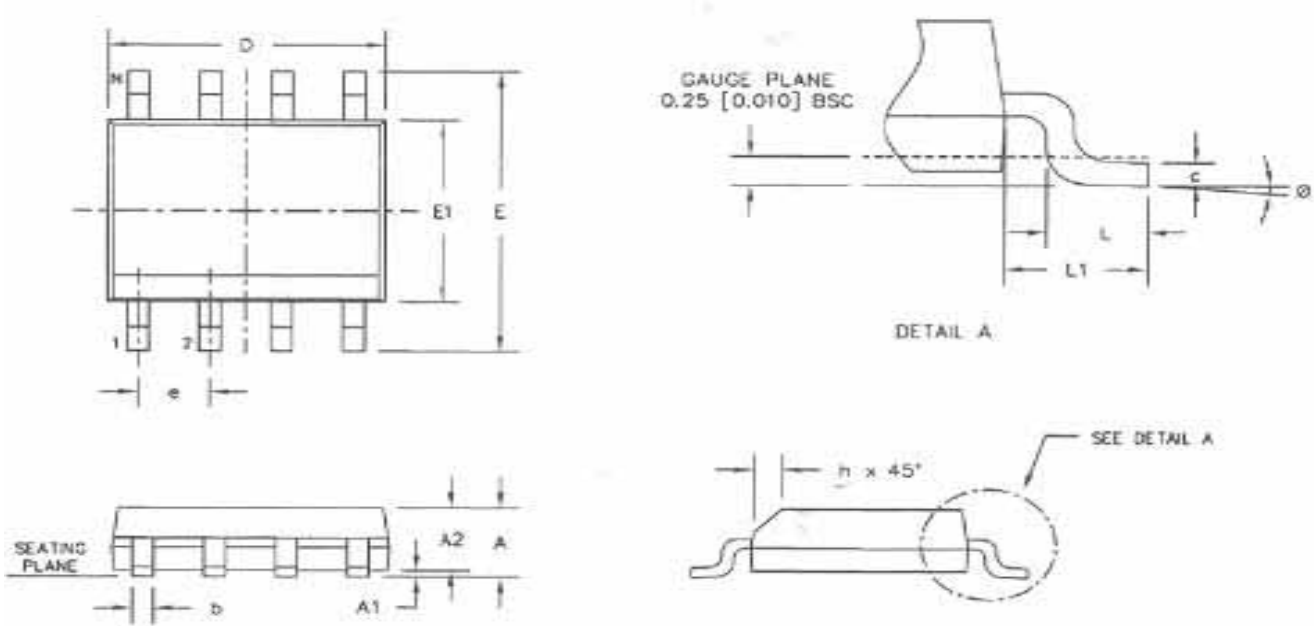
INCHES		
SYM	MIN	NOM
A	0.055	0.063
B	0.017	0.022
B1	0.014	0.019
C	0.014	0.017
D	0.173	0.181
D1	0.066	0.070
E	0.090	0.099
E1	0.084	0.086
e	0.059	
e1	0.118	
H	0.155	0.167
L	0.029	0.041

NOTES:

1. TOP PACKAGE ANGLE  $9^{\circ}+1^{\circ}/-2^{\circ}$  TOLERANCE, BOTTOM PACKAGE ANGLE IS  $3^{\circ}$  MAX.
2. PACKAGE CORNER RADIUS IS 5 MILS MAX ON ALL CORNERS.
3. SHINY PACKAGE FINISH ON ALL SIDES EXCEPT TOP SIDE FINISH IS MINIMUM MATTE OF 10-14VDL.

**8L SOIC PACKAGE DIMENSION**

8-Lead SOIC Plastic  
 Surface Mounted Package  
 SLI Package Code: D

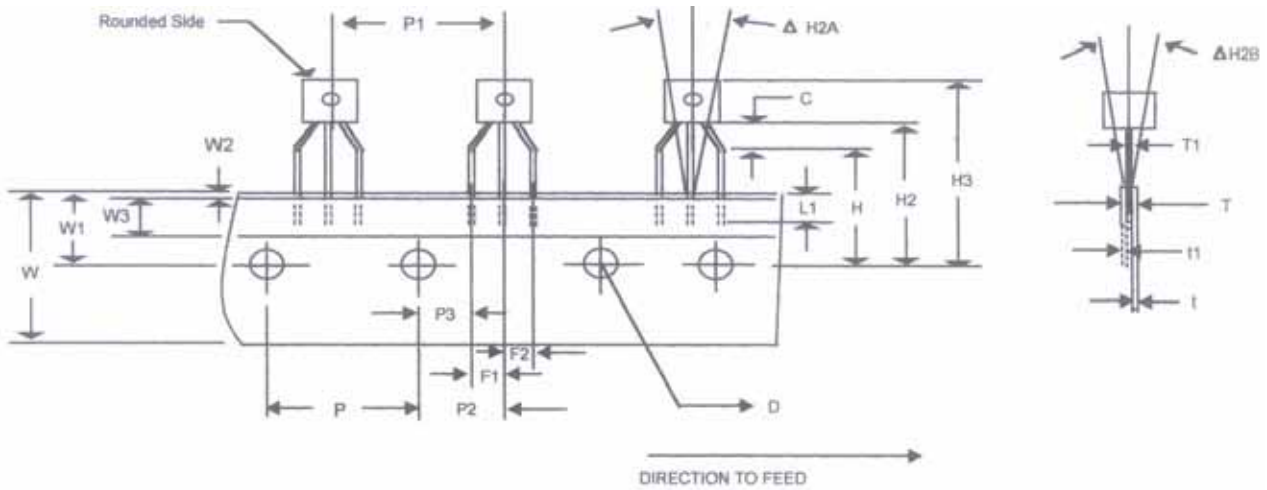


SYM	DIMENSION IN INCHES			DIMENSION IN MM		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.059	0.062	0.065	1.50	1.57	1.65
A1	0.004	0.008	0.010	0.10	0.20	0.25
A2	0.051	0.054	0.057	1.30	1.37	1.45
b	0.013	0.016	0.020	0.33	0.41	0.51
c	0.007	0.008	0.010	0.18	0.20	0.25
D	0.191	0.193	0.195	4.85	4.90	4.95
E1	0.151	0.153	0.155	3.84	3.89	3.94
E	0.228	0.234	0.240	5.79	5.94	6.10
e	0.050			1.27		
L	0.020	0.024	0.032	0.51	0.61	0.81
L1	0.039	0.041	0.043	0.99	1.04	1.09
Ø	0*	-	B*	0*	-	B*
h	0.011	0.015	0.019	0.28	0.38	0.48

**NOTES:**

1. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
2. COPLANARITY APPLIES TO THE TERMINALS. COPLANARITY SHALL EXCEED 0.003 (0.08 mm).
3. BASED FROM JEDEC NS-012 VARIATION AA.

**TO-92 AMMO PACK SPECIFICATIONS**

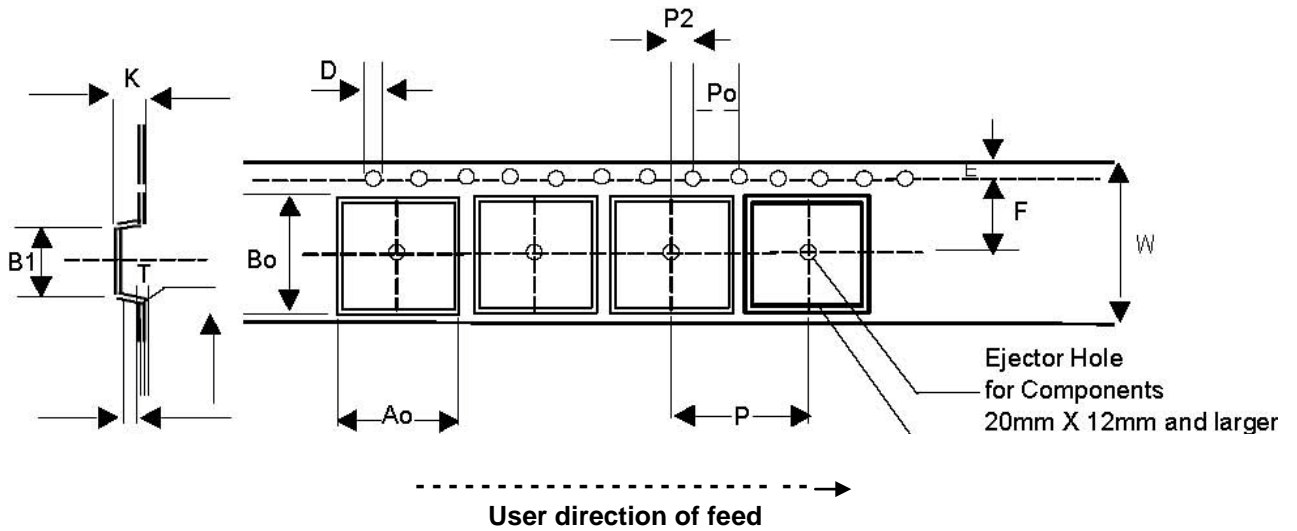


SYMBOL	DESCRIPTION	NOMINAL VALUE		TOLERANCES			
				min		max	
		mm	inch	mm	inch	mm	inch
D	Feed Hole Diameter	4.0	0.157	3.8	0.150	4.2	0.165
T1 (POD)	Component Lead Thickness	0.405	0.016	0.36	0.014	0.45	0.018
F1/F2	Lead Pitch (Left / Right)	2.54	0.100	2.4	0.094	2.8	0.110
C	Bottom of Component to Seating Plane	2.50	0.098	1.50	0.059	4.00	0.157
W1	Edge to Sprocket Hole Center	9.0	0.354	8.50	0.335	9.50	0.374
H2A	Deflection (Left or Right)	0.50	0.020	0	0	0.50	0.020
H2B	Deflection (Front or Rear)	1.0	0.039	0	0	1.0	0.039
H2 (H + C)	Feed Hole to Bottom of Component	18.5	0.728	17.00	0.669	20.50	0.087
H	Height of Seating Plane	16	0.630	15.5	0.610	16.5	0.650
H3	Feed Hole Center to Overall Transistor Height	27.75	1.092	23.5	0.925	32.0	1.260
L	Defective Unit Clipped Dimension	-	-	-	-	11.0	0.433
L1	Leadwire Enclosure	2.50	0.098	2.50	0.098	-	-
P	Feed Hole Pitch	12.7	0.500	12.40	0.488	13.0	0.512
P2	Center of Feed Hole to Center Lead	6.35	0.250	6.0	0.234	6.75	0.266
P3 (P2-F1)	First Lead Spacing Dimension	3.75	0.148	3.6	0.142	3.95	0.156

TO-92 Ammo Pack Requirement		
Components	Tape Width (W) mm	Fan Fold Box
TO92 3L	18	2000

**PACKAGE MECHANICAL DRAWING**

**Surface Mountable Tape & Reel Specifications in mm (inch)  
(SOIC and SOT-89)**



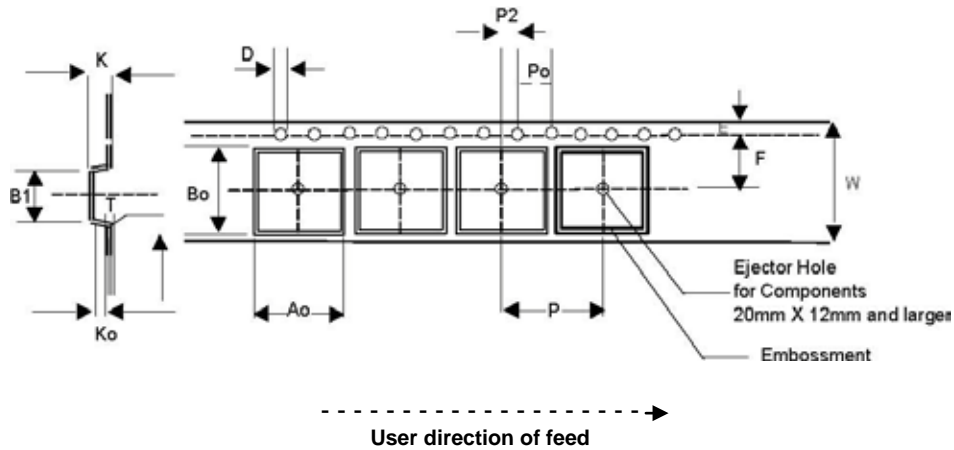
Tape Size (W)	D	E	P0	T (Max)	A0, B0, K0	T1 (Max)	Constant
8, 12, 16, 24mm	1.55±0.05 (.061±.002)	1.75±0.10 (.069±.004)	4.0±0.10 (.157±.004)	0.400 (.016)	See Note	0.100 (.004)	Dimensions

Tape Size (W)	B1 Max.	D1 Min.	F	K Max.	P2	
8 mm	4.2 (.165)	1.0 (.039)	3.5±0.05 (.138±.002)	2.4 (.094)	2.0±.05	
12 mm	8.2 (.323)	1.5 (.059)	5.5±0.05 (.217±.002)	4.5 (.177)	.079±.002	Variable Dimensions

Per Package Requirement				
Components	Tape Width (W) mm	Cavity Pitch (P) mm	Devices per Reel	
			7" Reel	13" Reel
SOIC 8L	12	8	-	2500
SOT-89 3L	12	8	-	2500

**PACKAGE MECHANICAL DRAWING**

**Surface Mountable Tape & Reel Specifications in mm (inch)  
(SOIC)**

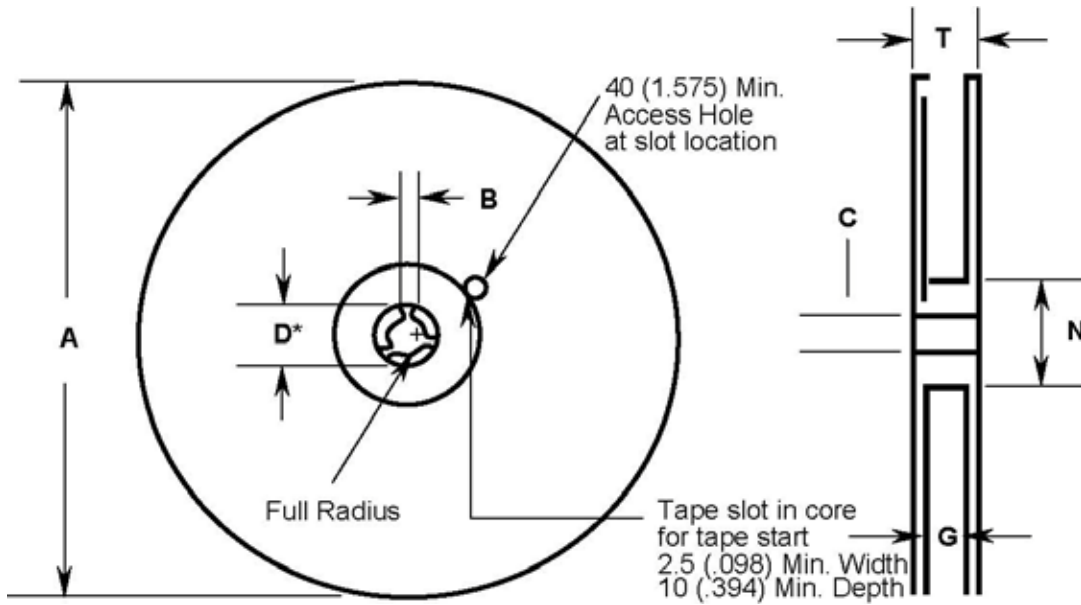


Tape Size (W)	D	E	P0	T (Max)	A0, B0, K0	T1 (Max)	Constant Dimensions
8, 12, 16, 24mm	1.55±0.05 (.061±.002)	1.75±0.10 (.069±.004)	4.0±0.10 (.157±.004)	0.400 (.016)	See Note	0.100 (.004)	

Tape Size (W)	B1 Max.	D1 Min.	F	K Max.	P2	
8 mm	4.2 (.165)	1.0 (.039)	3.5±0.05 (.138±.002)	2.4 (.094)	2.0±.05	
12 mm	8.2 (.323)	1.5 (.059)	5.5±0.05 (.217±.002)	4.5 (.177)	.079±.002	Variable Dimensions

Per Package Requirement					
Components	Tape Width (W) mm	Cavity Pitch (P) mm	Devices per Reel		
			7" Reel	13" Reel	
SOIC 8L	12	8	-	2500	

**Note:** A0 B0 K0 are determined by component size. The clearance between the component and the cavity must be within 0.05 [.002] min. to 0.50 [.020] max. for 8mm tape, 0.05 [.002] min to 0.65 [.026] max for 12mm tape.



REEL DIMENSIONS							
Tape Size	A Max.	B Min.	C	D* Min.	N Min.	G	T Max.
8mm	330 (12.992)	1.5 (.059)	13.0±0.20 (.152±.008)	20.2 (.795)	50 (1.973)	8.4±1.5 0.0 (.331±.059) 0.0	14.4 (.567)
12mm	330 (12.992)	1.5 (.059)	13.0±0.20 (.152±.008)	20.2 (.795)	50 (1.973)	12.4±2.0 0.0 (.488±.078) 0.0	14.4 (.567)

**MECHANICAL POLARIZATION**

**SOIC-8L DEVICE**

