N-CHANNEL MOSFET (dual transistors)

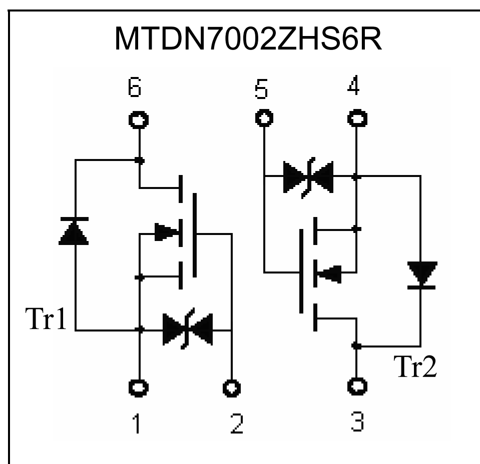
MTDN7002ZHS6R

Features

- Low on-resistance
- High ESD capability
- High speed switching
- Low-voltage drive(4V)
- Easily designed drive circuits
- Easy to use in parallel
- Pb-free package

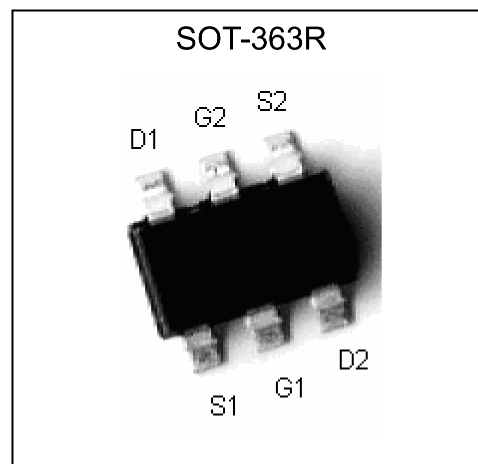
Equivalent Circuit

MTDN7002ZHS6R



Outline

SOT-363R



The following characteristics apply to both Tr1 and Tr2

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	115	mA
	Pulsed	I_{DP}	700 (Note 1)	mA
Drain Reverse Current	Continuous	I_{DR}	115	mA
	Pulsed	I_{DRP}	700 (Note 1)	mA
Power Dissipation		Pd	300(total) (Note 2)	mW
ESD susceptibility			1250 (Note 3)	V
Junction Temperature		Tj	150	°C
Storage Temperature		Tstg	-55~+150	°C

Note : 1. Pulse test, pulse width≤300μs, duty≤2%
2. 200mW per element must not be exceeded.
3. Human body model, 1.5kΩ in series with 100pF

Electrical Characteristics (Ta=25°C)

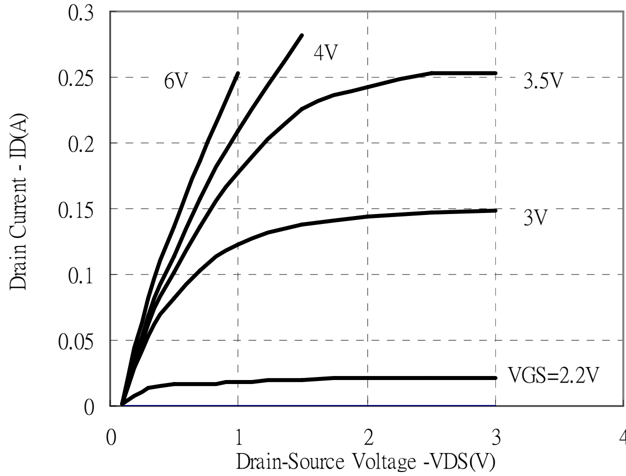
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSS}*	60	-	-	V	V_{GS}=0, I_D=10μA
$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
I_{GSS}	-	-	±10	μA	V_{GS}=±20V, V_{DS}=0
I_{DSS}	-	-	1	μA	V_{DS}=60V, V_{GS}=0
$R_{DS(ON)}$*	-	3.6	5.5	Ω	I_D=100mA, V_{GS}=5V
	-	3	5		I_D=100mA, V_{GS}=10V
G_{FS}	100	-	-	mS	V_{DS}=10V, I_D=100mA
C_{iss}	-	30.5	-	pF	V_{DS}=10V, V_{GS}=0, f=1MHz
C_{oss}	-	9.3	-		
C_{rss}	-	5.9	-		

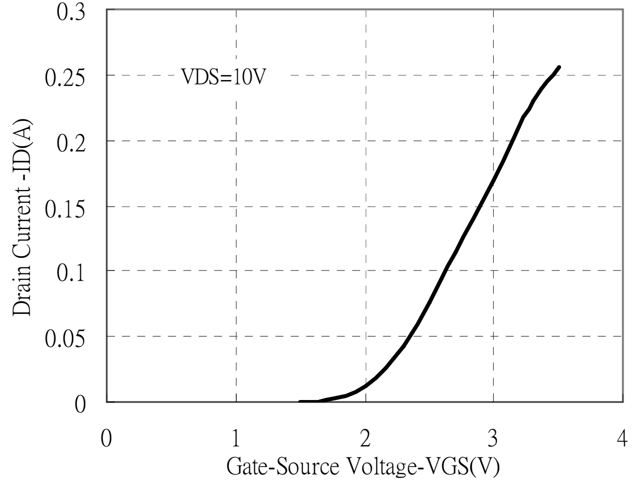
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

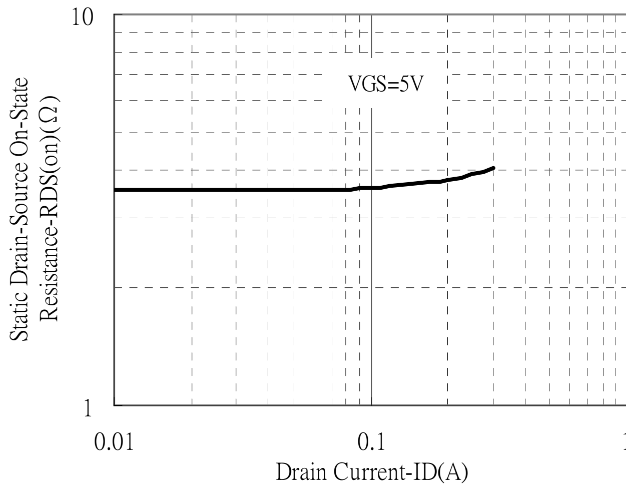
Ordering Information

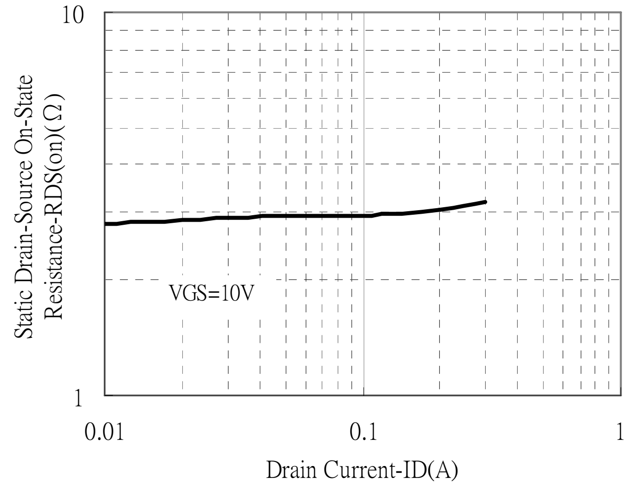
Device	Package	Shipping	Marking
MTDN7002ZHS6R	SOT-363 (Pb-free)	3000 pcs / Tape & Reel	72

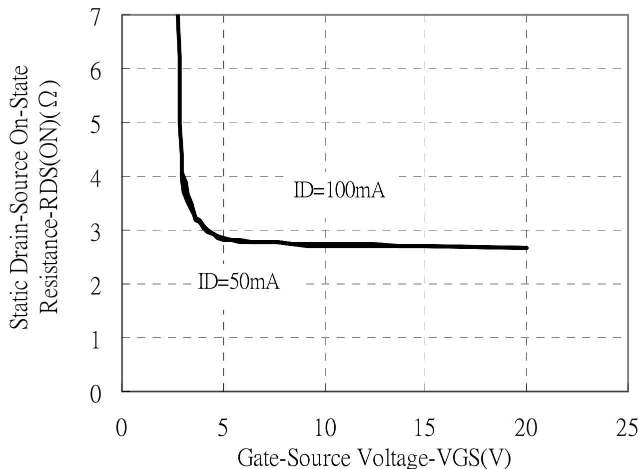
Characteristic Curves

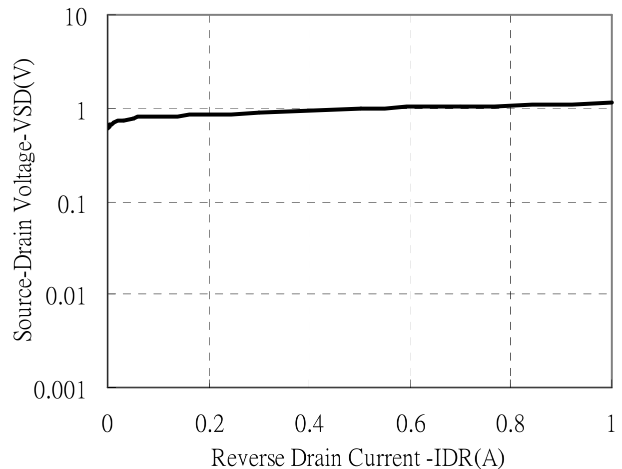




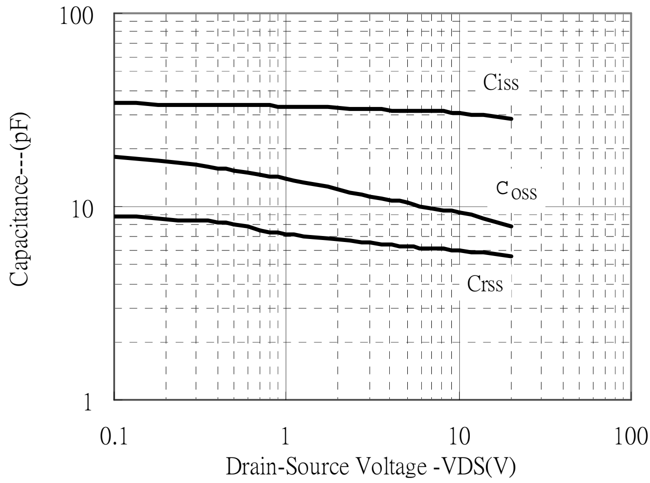


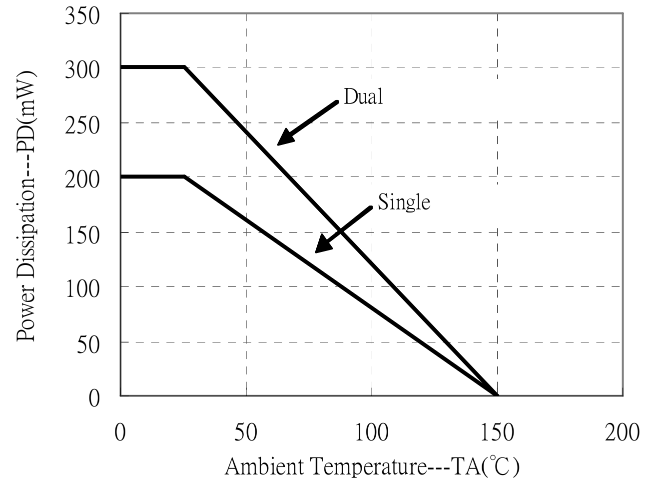




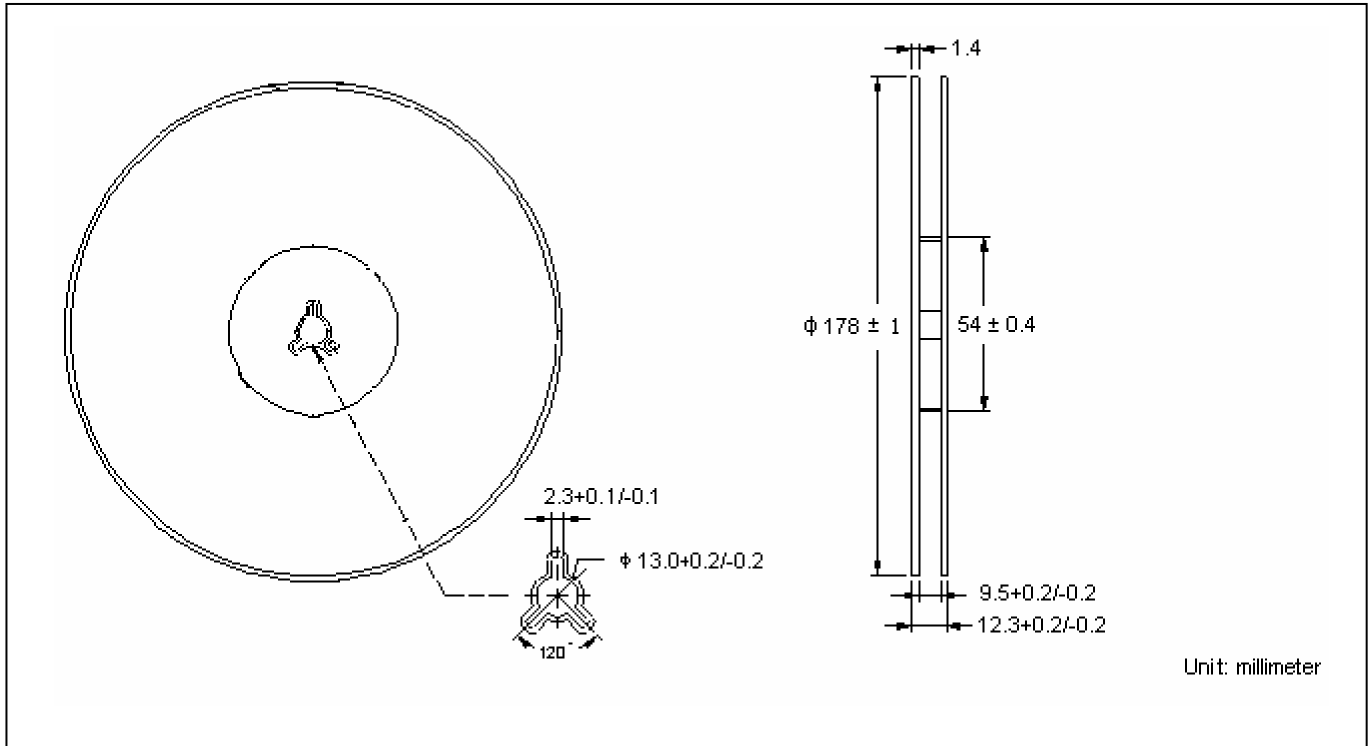


Characteristic Curves(Cont.)

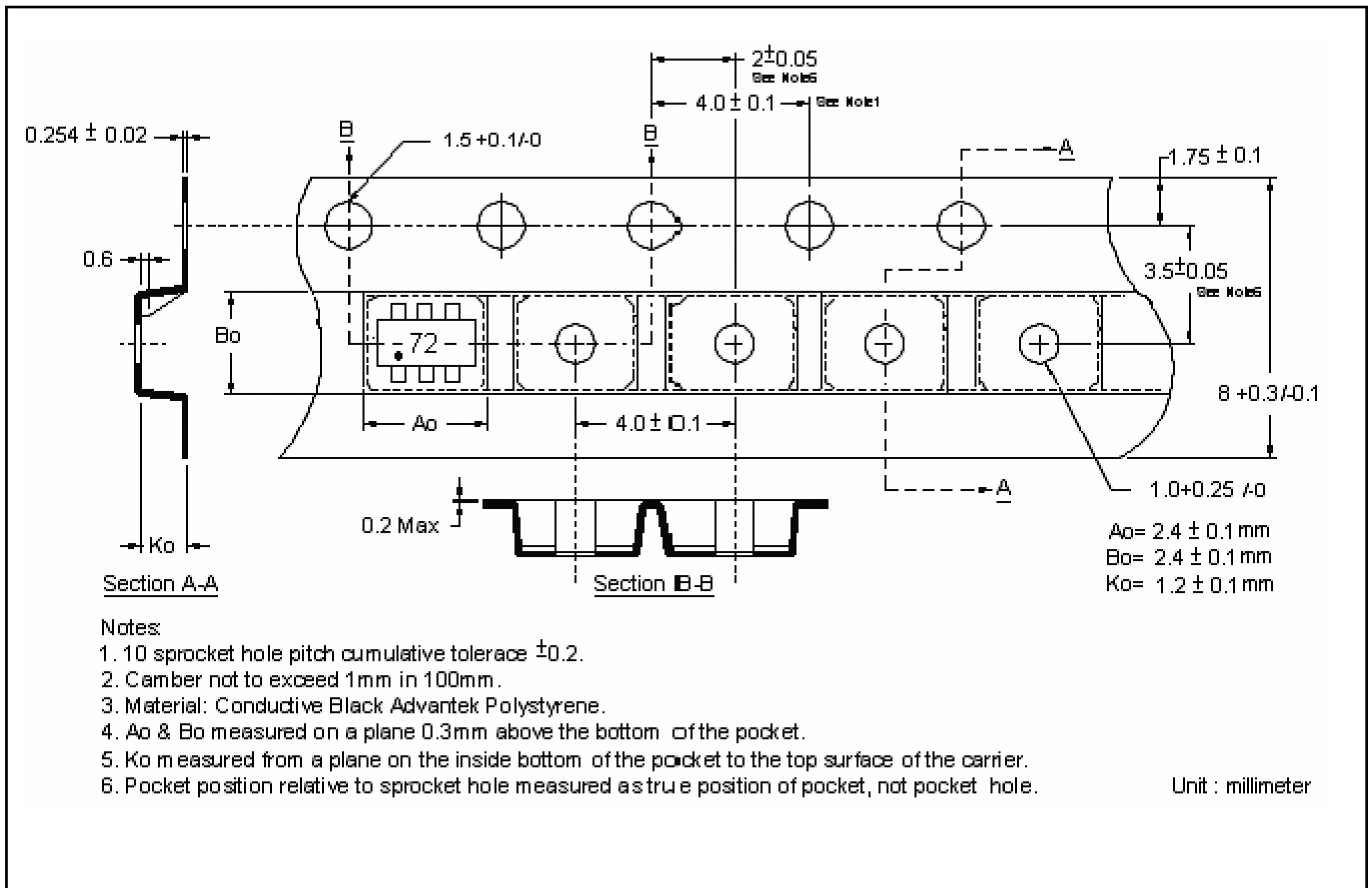




Reel Dimension



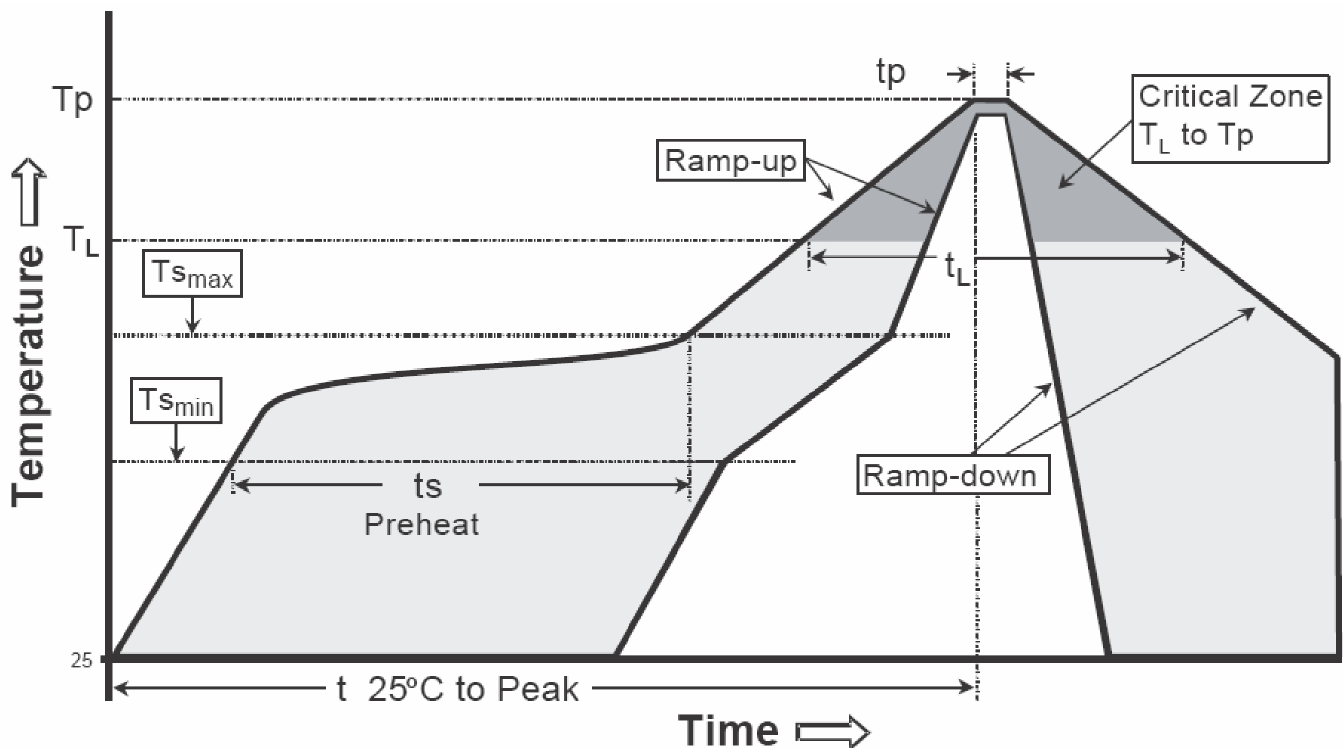
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

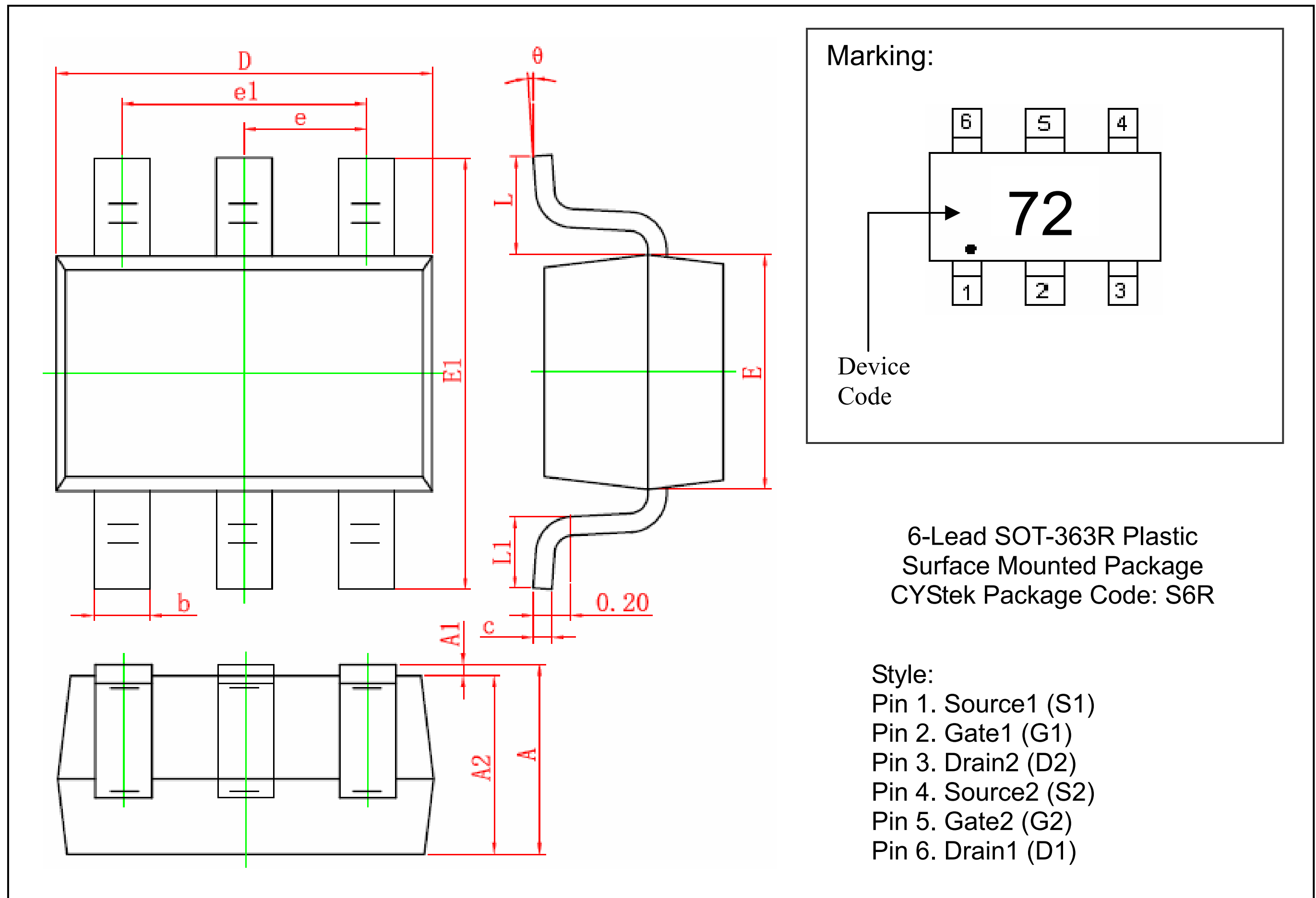
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time(ts_{min} to ts_{max})	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-363 Dimension



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650	TYP	0.026	TYP
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.150	0.350	0.006	0.014	L	0.525	REF	0.021	REF
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					

Notes : 1.Controlling dimension : millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

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