50V P-CHANNEL Enhancement Mode MOSFET

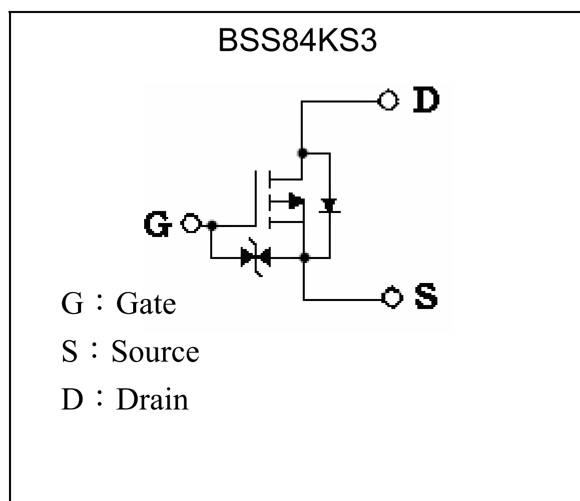
BSS84KS3

BV_{DSS}	-50V
I_D	-170mA
R_{DSON}@-10V	8Ω (MAX)
R_{DSON}@-5V	10Ω (MAX)
R_{DSON}@-4V	12Ω (MAX)
R_{DSON}@-2.5V	32Ω (MAX)

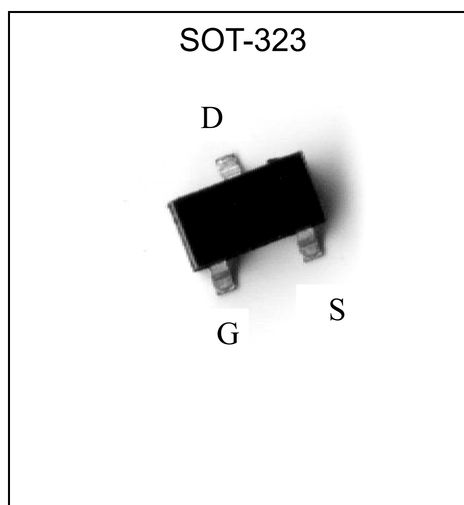
Features

- Low gate charge
- Excellent thermal and electrical capabilities
- Pb-free lead plating and halogen-free package

Equivalent Circuit



Outline



Ordering Information

Device	Package	Shipping
BSS84KS3-0-T1-G	SOT-323 (Pb-free lead plating & halogen-free package)	3000 pcs / Tape & Reel

Absolute Maximum Ratings (Tj=25°C, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current @ T_A=25°C, V_{GS}=-5V	I_D	-170	mA
Pulsed Drain Current (Note 1)	I_{DM}	-520	mA
Maximum Power Dissipation @ T_A=25℃ (Note 2)	P_D	350	mW
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{th,ja}$	360	°C/W
Operating Junction and Storage Temperature Range	Tj, Tstg	-55~+150	°C

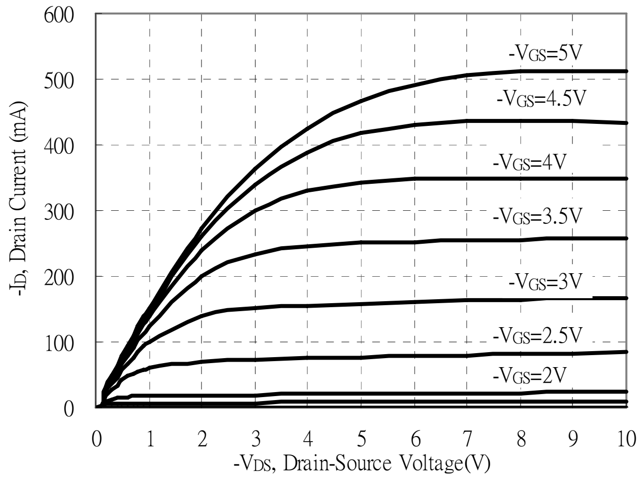
Note : 1. Pulse width≤ 10μs, duty cycle≤2%.
2. Surface mounted on 1 in² copper pad of FR-4 board, t≤5s.

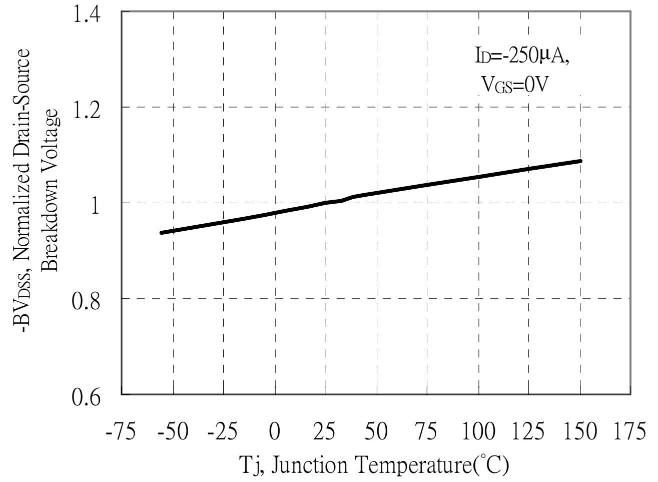
Electrical Characteristics (Tj=25°C, unless otherwise specified)

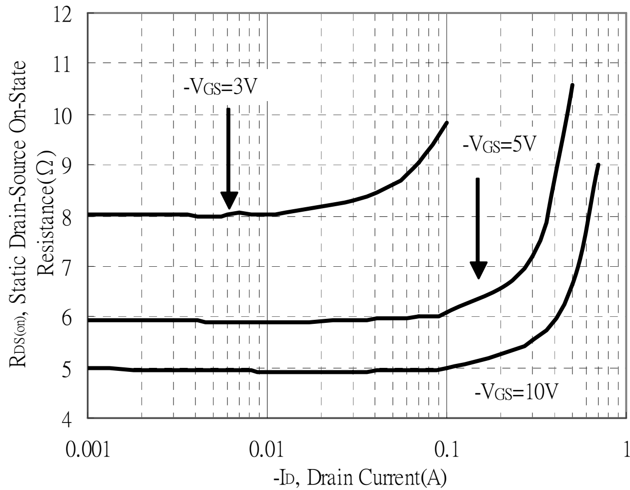
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	-50	-	-	V	V_{GS}=0V, I_D=-250μA
$V_{GS(th)}$	-1	-1.4	-2	V	V_{DS}=V_{GS}, I_D=-1mA
G_{FS}	80	-	-	mS	V_{DS}=-10V, I_D=-100mA
I_{GSS}	-	-	±10	μA	V_{GS}=±20V, V_{DS}=0
I_{DSS}	-	-	-1		V_{DS}=-50V, V_{GS}=0
	-	-	-25		V_{DS}=-50V, V_{GS}=0, Tj=125°C
*$R_{DS(ON)}$	-	5	8	Ω	V_{GS}=-10V, I_D=-100mA
	-	6	10		V_{GS}=-5V, I_D=-100mA
	-	-	12		V_{GS}=-4V, I_D=-10mA
	-	-	32		V_{GS}=-2.5V, I_D=-1mA
Dynamic					
Ciss	-	25	-	pF	V_{DS}=-5V, V_{GS}=0, f=1MHz
Coss	-	7	-		
Crss	-	2	-		
*$t_{d(ON)}$	-	2.5	-	ns	V_{DS}=-15V, I_D=-100mA, V_{GS}=-5V, R_G=3.3Ω
*t_r	-	2	-		
*$t_{d(OFF)}$	-	7.3	-		
*t_f	-	3	-		
*Qg	-	1.2	-	nC	V_{DS}=-40V, I_D=-500mA, V_{GS}=-5V
Source-Drain Diode					
*I_S	-	-	-130	mA	
*I_{SM}	-	-	-520		
*V_{SD}	-	-0.85	-1.2	V	V_{GS}=0V, I_S=-130mA

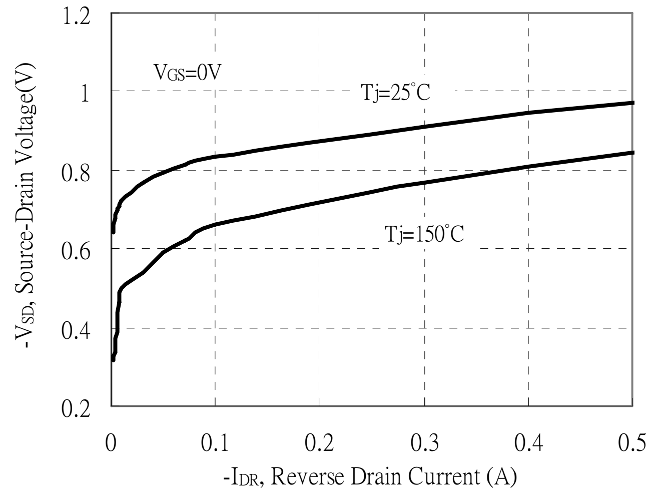
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

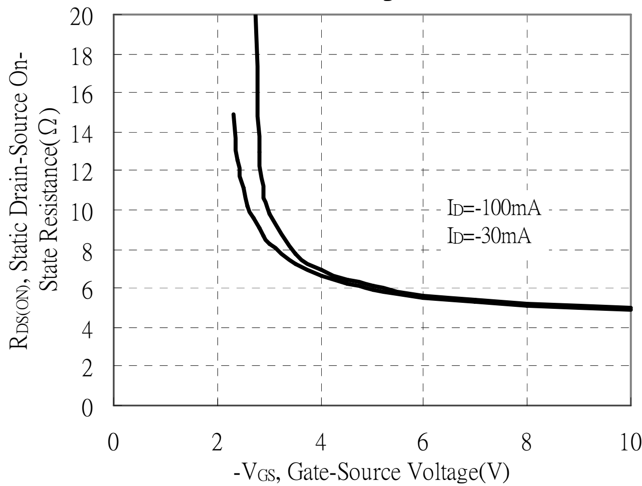
Typical Characteristics

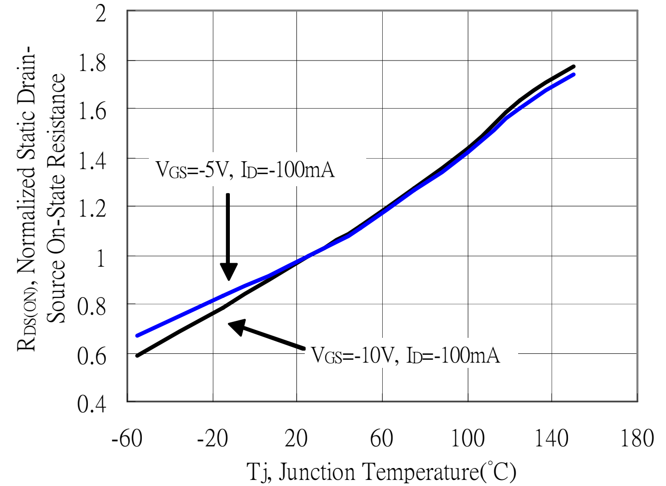




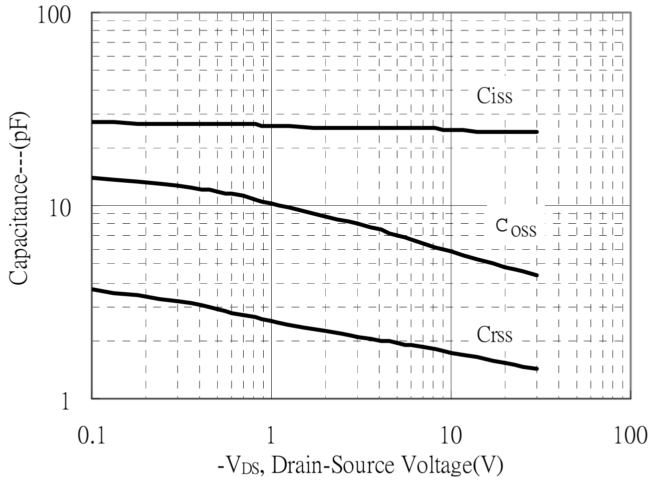


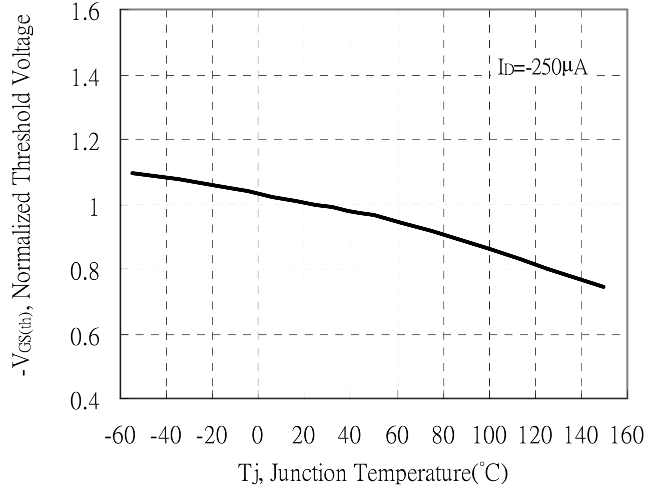


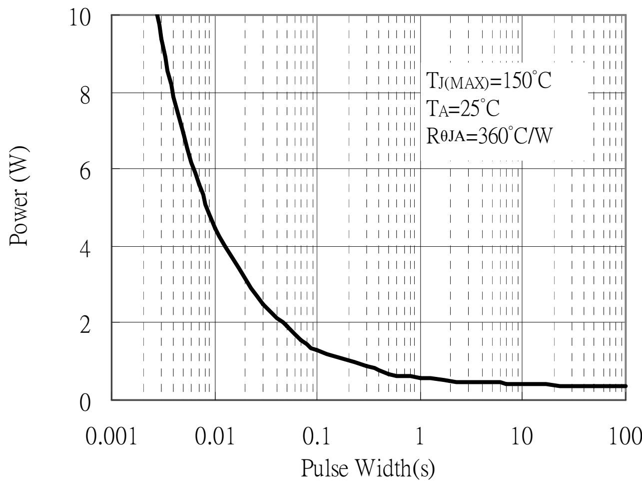


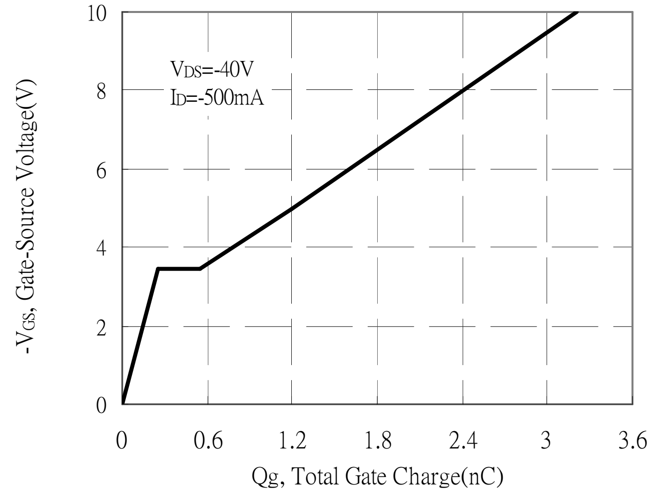


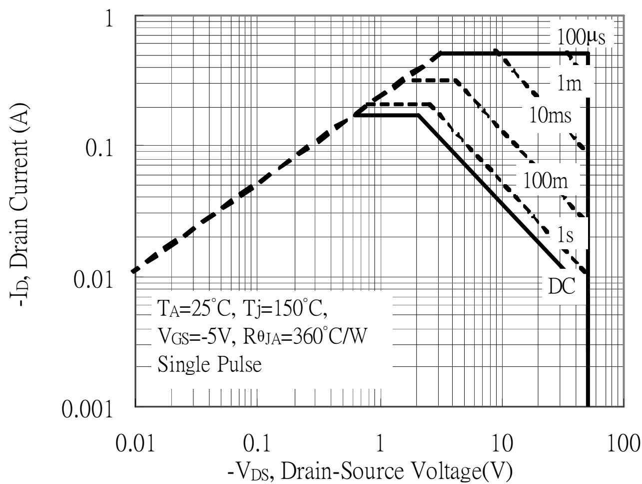
Typical Characteristics(Cont.)

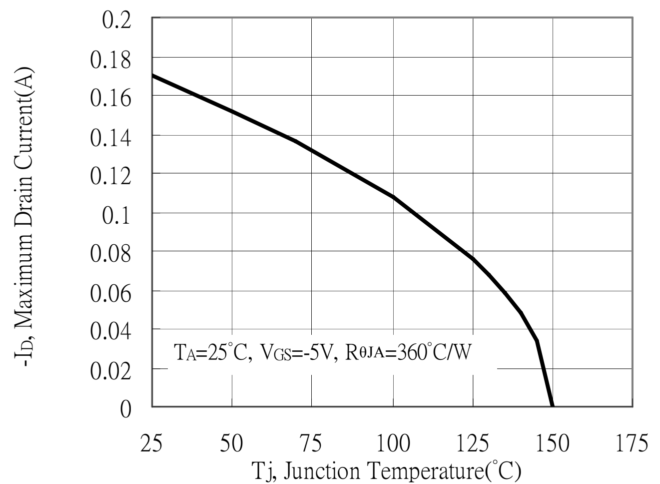












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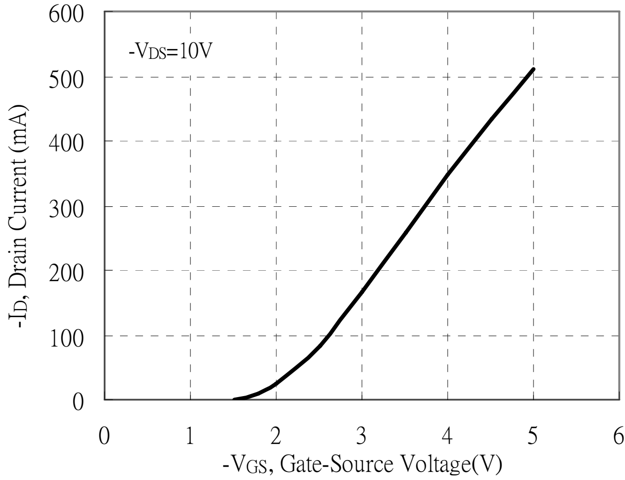
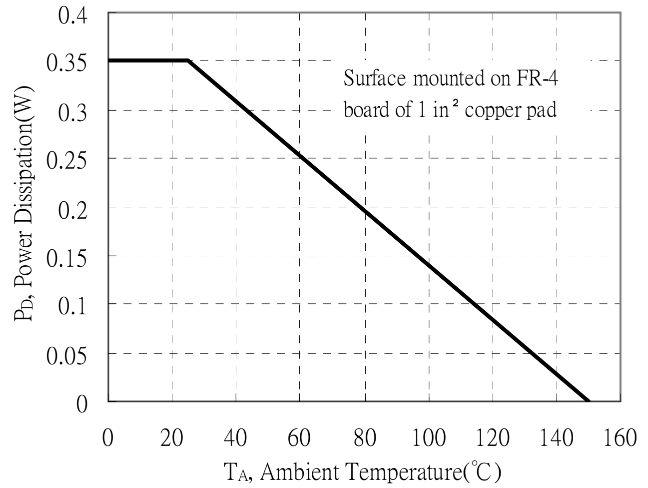
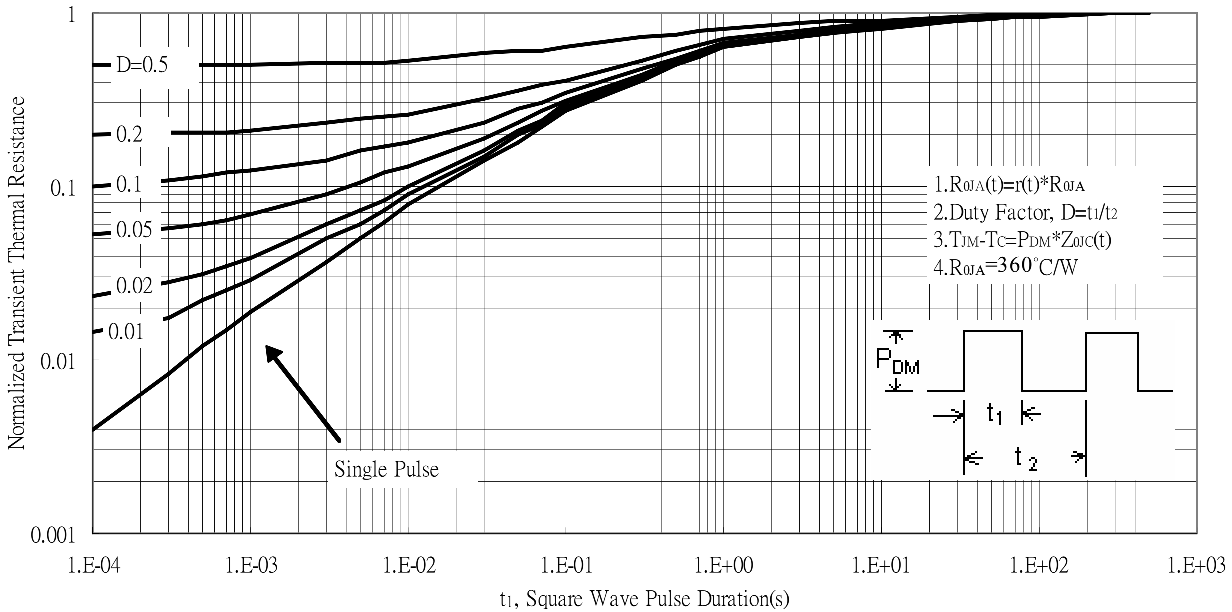
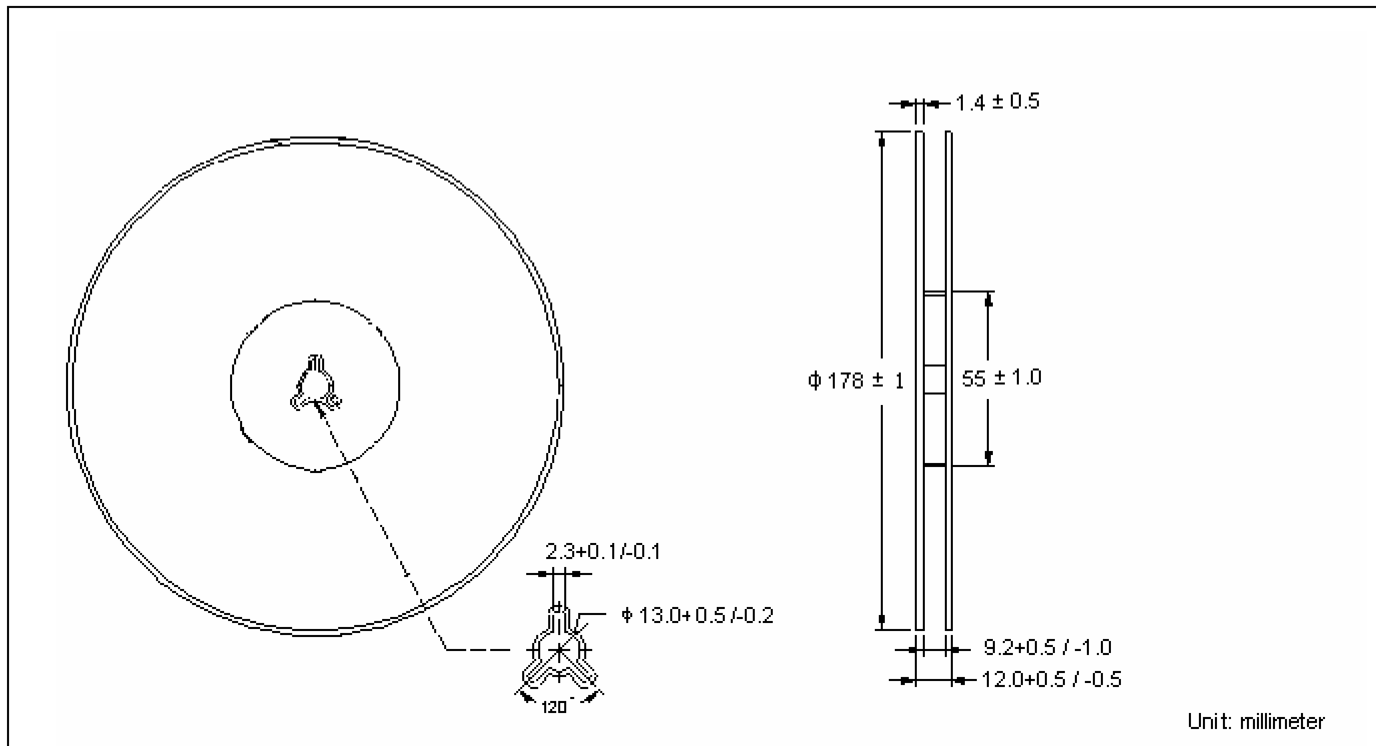


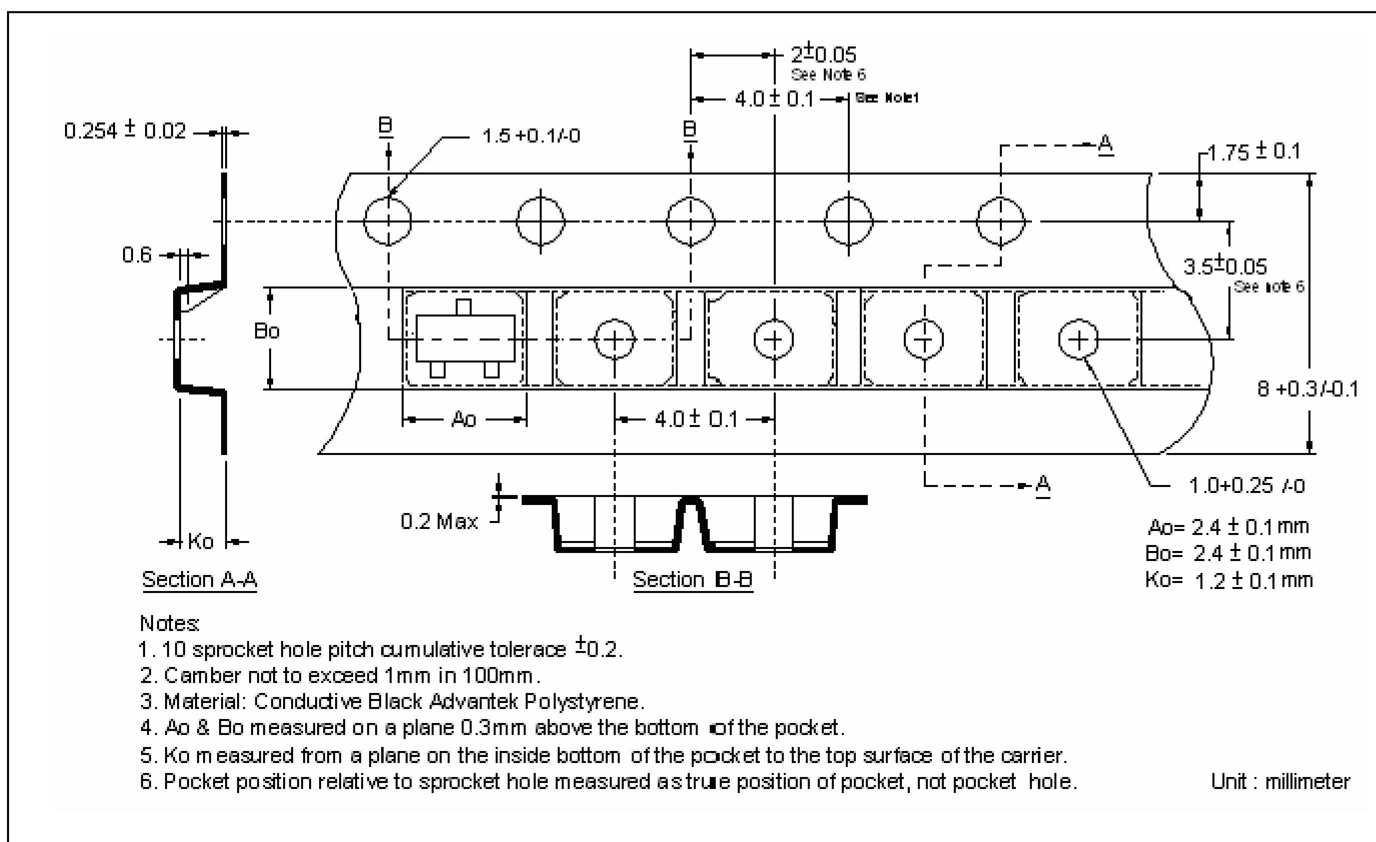




Reel Dimension



Carrier Tape Dimension



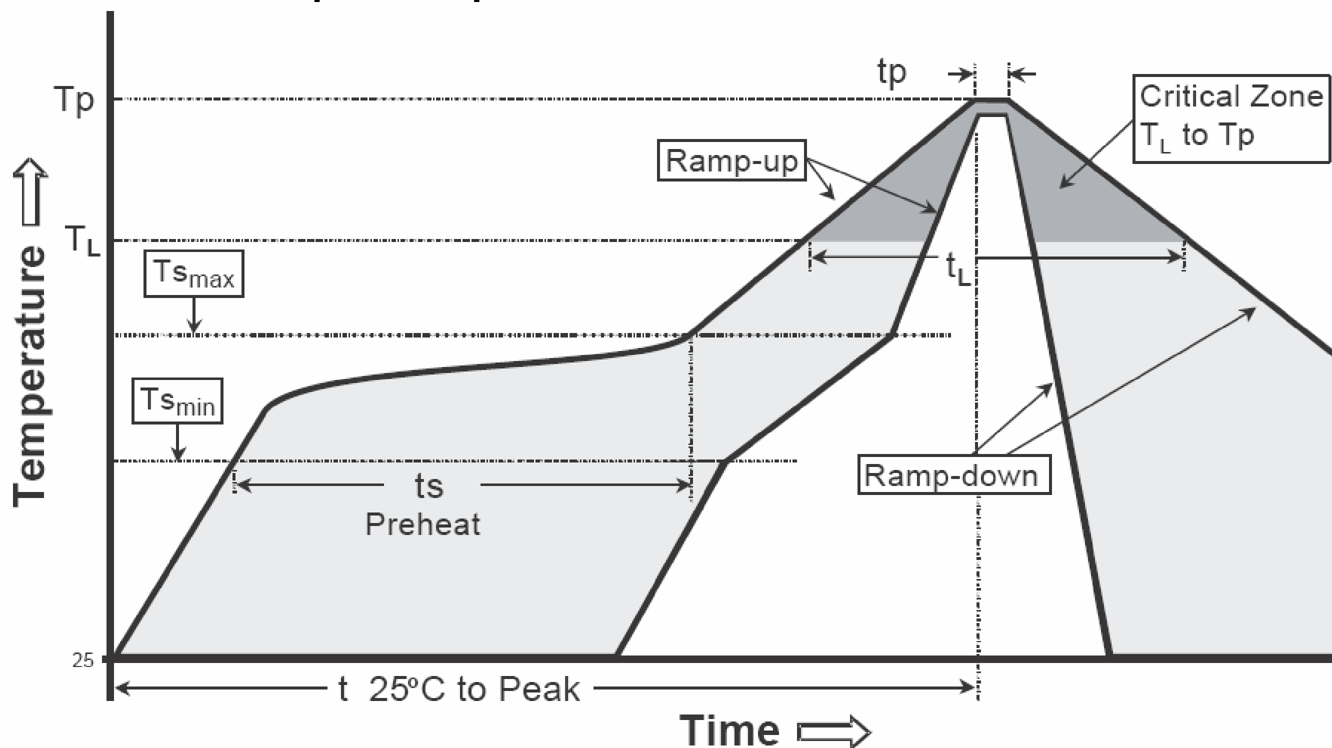
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

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

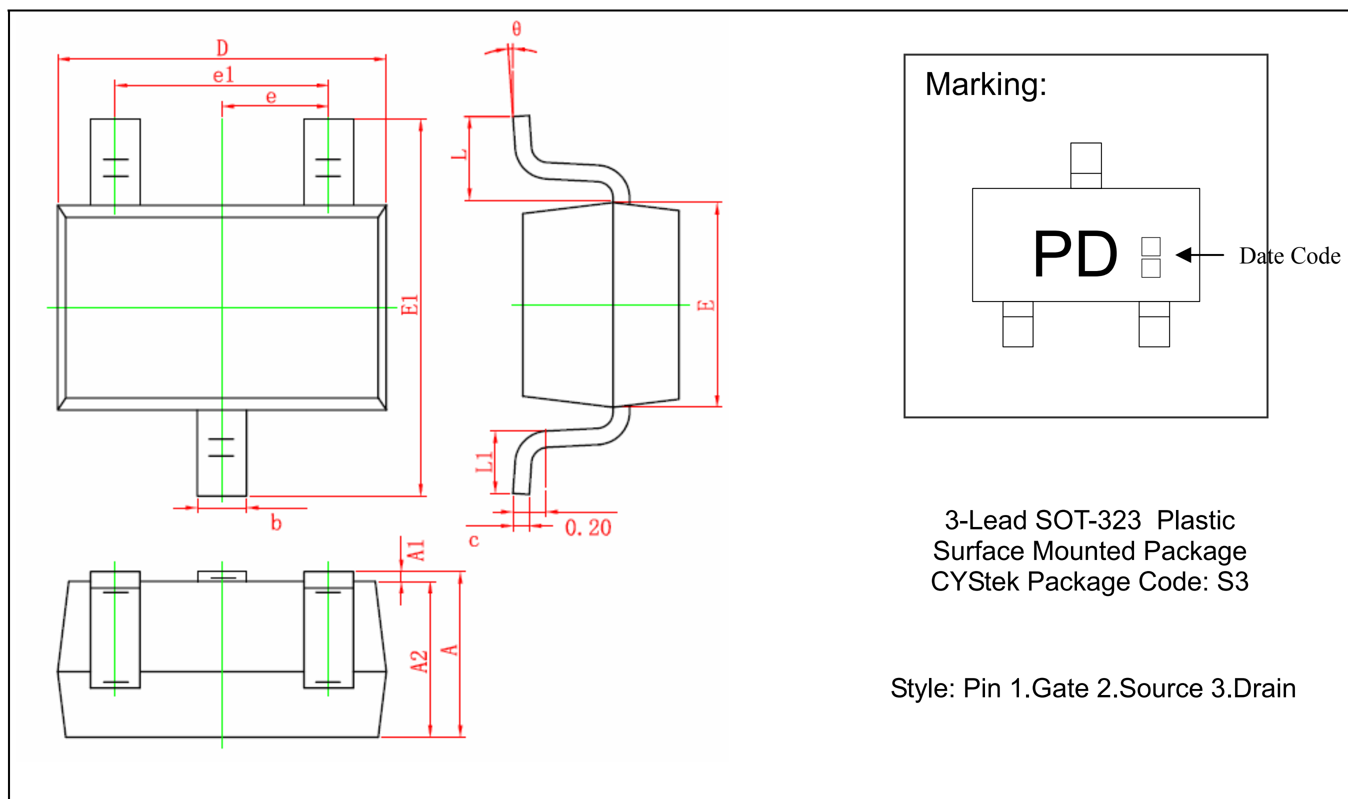
Recommended temperature profile for IR reflow



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(Ts min) −Temperature Max(Ts 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 (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(TP)	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-323 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	0.200	0.400	0.008	0.016	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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