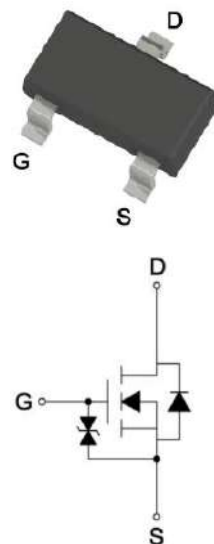


Features:

- Low Gate Charge
- Fast Switching Characteristic
- Pb-free lead plating and halogen-free
- ESD protected gate, typical 1kV (HBM)

SOT-323



Product Summary

BV_{DSS}	30	V
$R_{DS(ON)}$ typ. @ $V_{GS}=4.5V$, $I_D=1A$	128	mΩ
$R_{DS(ON)}$ typ. @ $V_{GS}=2.5V$, $I_D=1A$	158	
I_D @ $V_{GS}=4.5V$, $T_A=25^\circ C$	1.2	A

Absolute Maximum Ratings ($T_A=25^\circ C$)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	±10	
Continuous Drain Current @ V _{GS} =4.5V, T _A =25°C		I _D	1.2	A
Continuous Drain Current @ V _{GS} =4.5V, T _A =70°C			0.96	
Pulsed Drain Current		I _{DM}	4.8	
Continuous Body Diode Forward Current @ T _A =25°C		I _S	0.4	
Pulsed Body Diode Forward Current @ T _A =25°C		I _{SM}	1.6	
Total Power Dissipation	T _A =25°C	P _D	0.5	W
	T _A =70°C		0.3	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55~+150	°C
Steady State Thermal Resistance, Junction-to-Ambient		R _{θJA}	270	°C/W

Electrical Characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

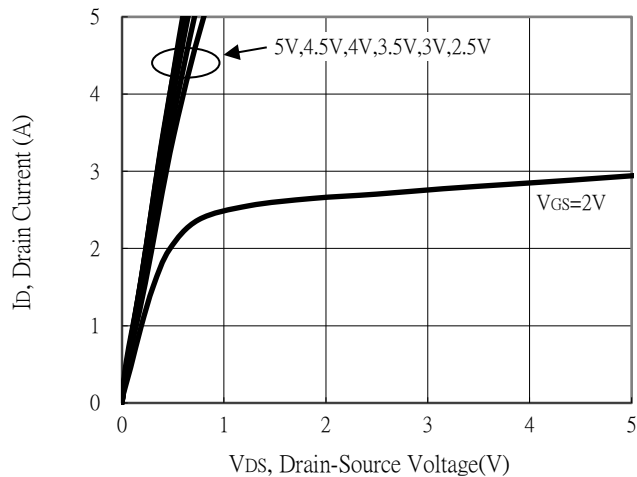
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	30	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	0.5	-	1.5		V _{DS} =V _{GS} , I _D =250μA
G _{FS}	-	3.7	-	S	V _{DS} =5V, I _D =1A
I _{GSS}	-	-	±10	μA	V _{GS} =±8V, V _{DS} =0V
I _{DSS}	-	-	1		V _{DS} =24V, V _{GS} =0V
R _{DS(ON)}	-	128	168	mΩ	V _{GS} =4.5V, I _D =1A
	-	158	225		V _{GS} =2.5V, I _D =1A
Dynamic					
C _{iss}	-	148	-	pF	V _{DS} =15V, V _{GS} =0V, f=1MHz
C _{oss}	-	20	-		
C _{rss}	-	14	-		
R _g	-	14	-	Ω	f=1MHz
Q _g *d,e	-	2.1	-	nC	V _{DS} =15V, I _D =1A, V _{GS} =4.5V
Q _{gs} *d,e	-	0.7	-		
Q _{gd} *d,e	-	0.1	-		
t _{d(ON)} *d,e	-	5	-	ns	V _{DS} =15V, I _D =1A, V _{GS} =4.5V, R _{GS} =6Ω
tr *d,e	-	16	-		
t _{d(OFF)} *d,e	-	16	-		
t _f *d,e	-	6.5	-		
Source-Drain Diode					
V _{SD} *d	-	0.83	1.2	V	I _S =1A, V _{GS} =0V
t _{rr}	-	6	-	ns	I _F =1A, di/dt=100A/μs
Q _{rr}	-	2.3	-	nC	

Note:

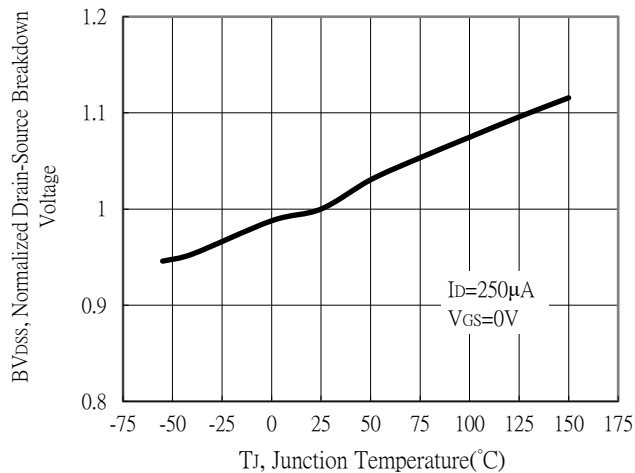
- *a. The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper Dissipation.
- *b. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The power dissipation P_D is based on $R_{\theta JA}$ and the maximum allowed junction temperature of 150°C . The value in any given application depends on the user's specific board design.
- *c. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$. Ratings are based on low frequency and low duty cycles to keep initial $T_J=25^{\circ}\text{C}$.
- *d. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- *e. Independent of operating temperature.

Typical Characteristics

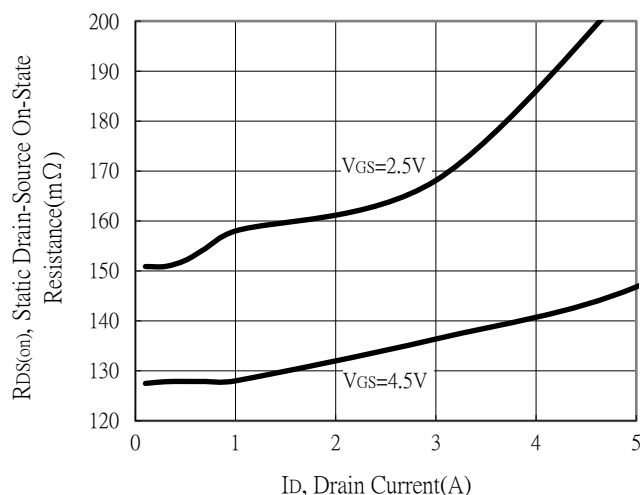
Typical Output Characteristics



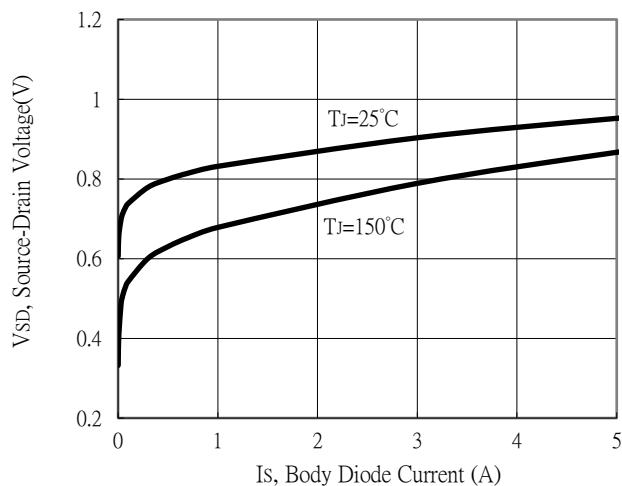
Breakdown Voltage vs Ambient Temperature



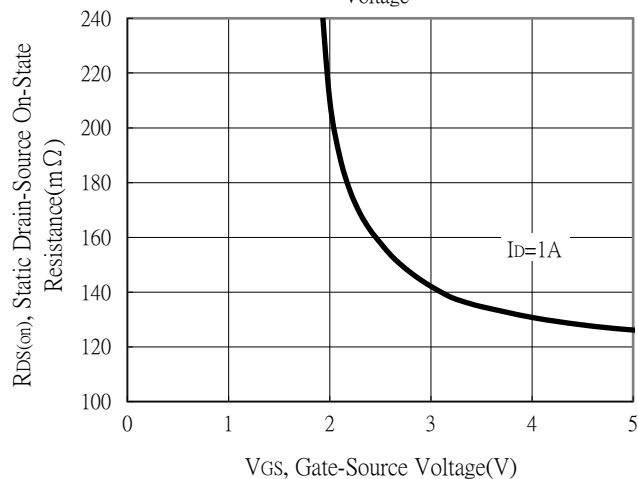
Static Drain-Source On-State resistance vs Drain Current



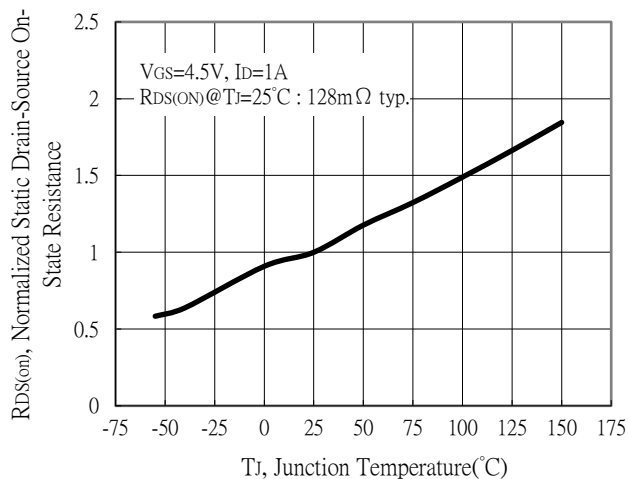
Body Diode Current vs Source-Drain Voltage



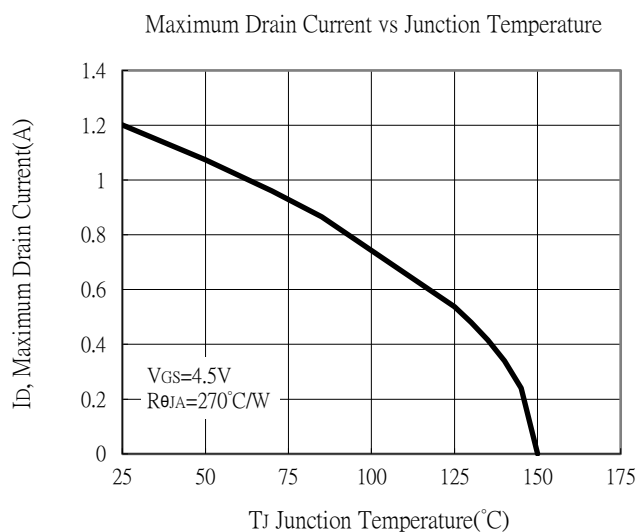
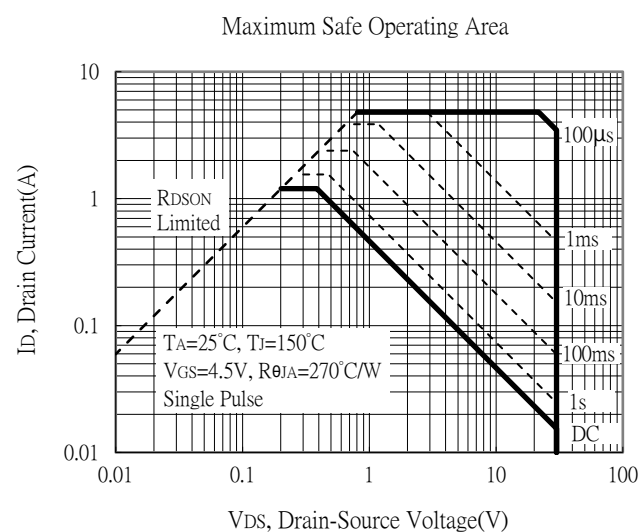
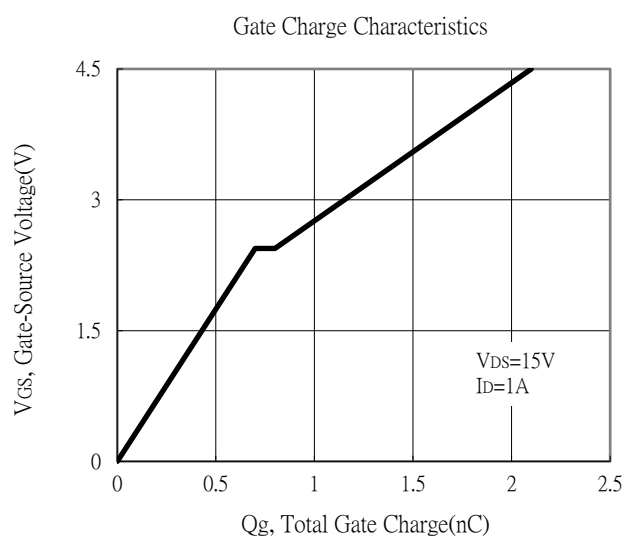
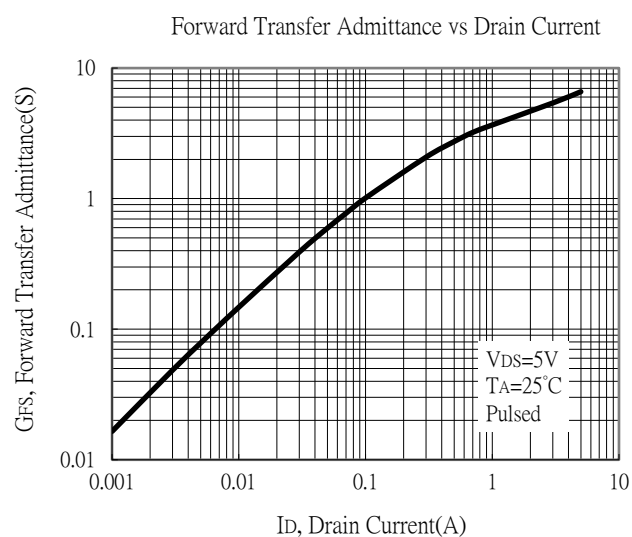
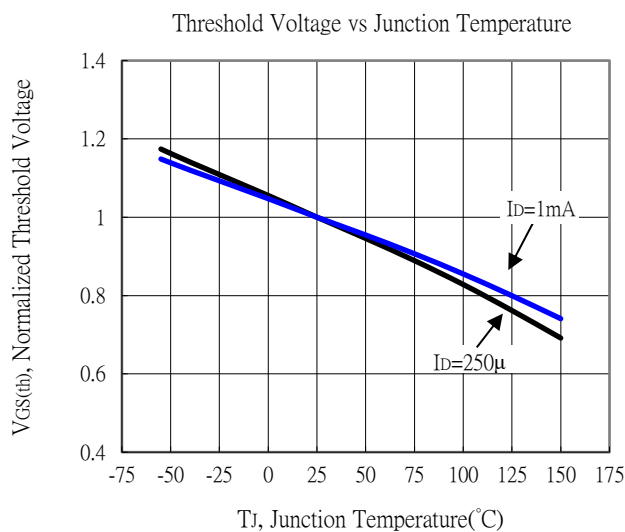
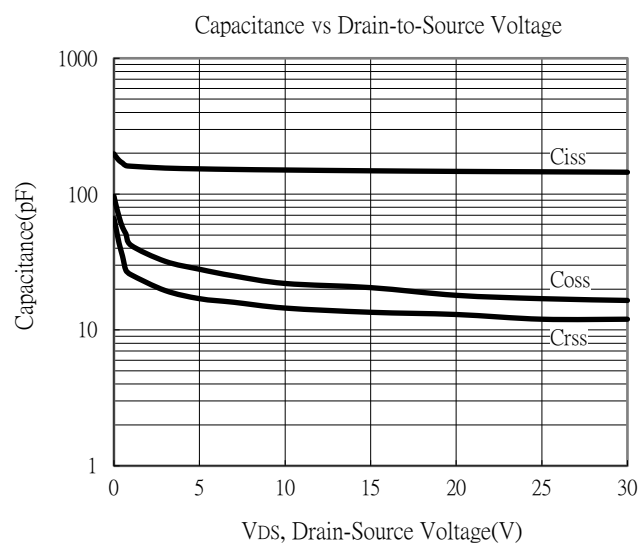
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

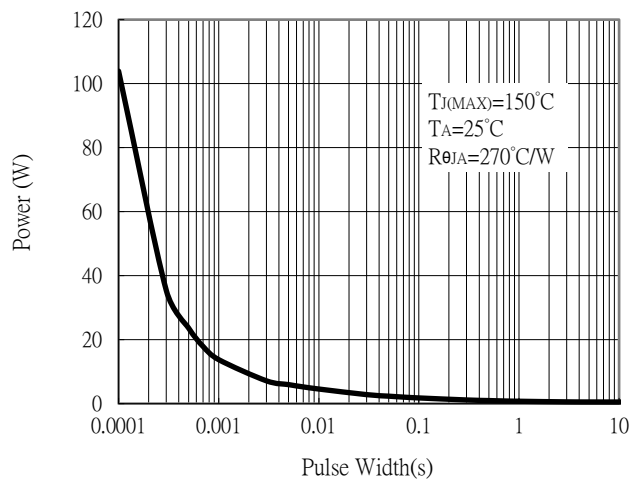


Typical Characteristics

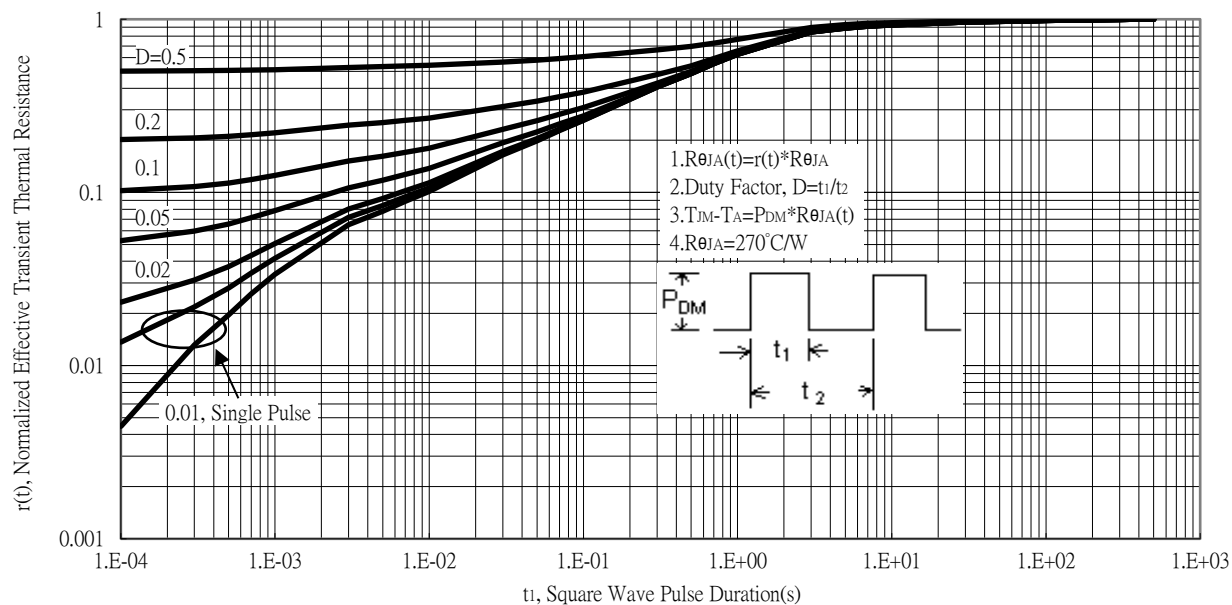


Typical Characteristics

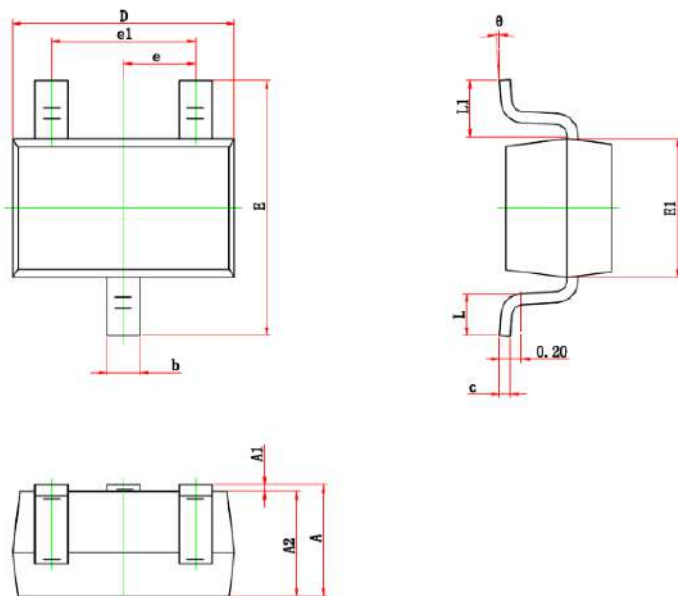
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves

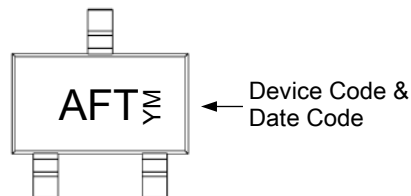


SOT-323 Dimension



3-Lead SOT-323 Plastic Surface Mount Package

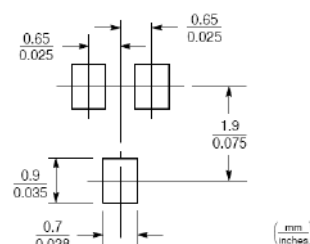
Marking



YM: Date Code Marking

Y: Year Code, the last digit of Christian year

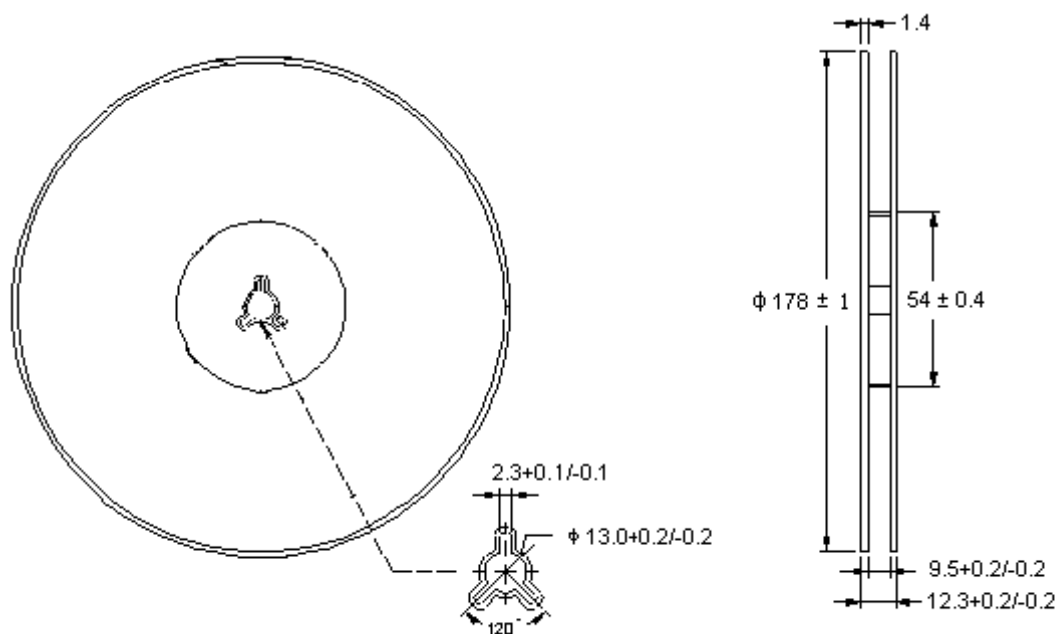
M: Month Code



Recommended Soldering Footprint

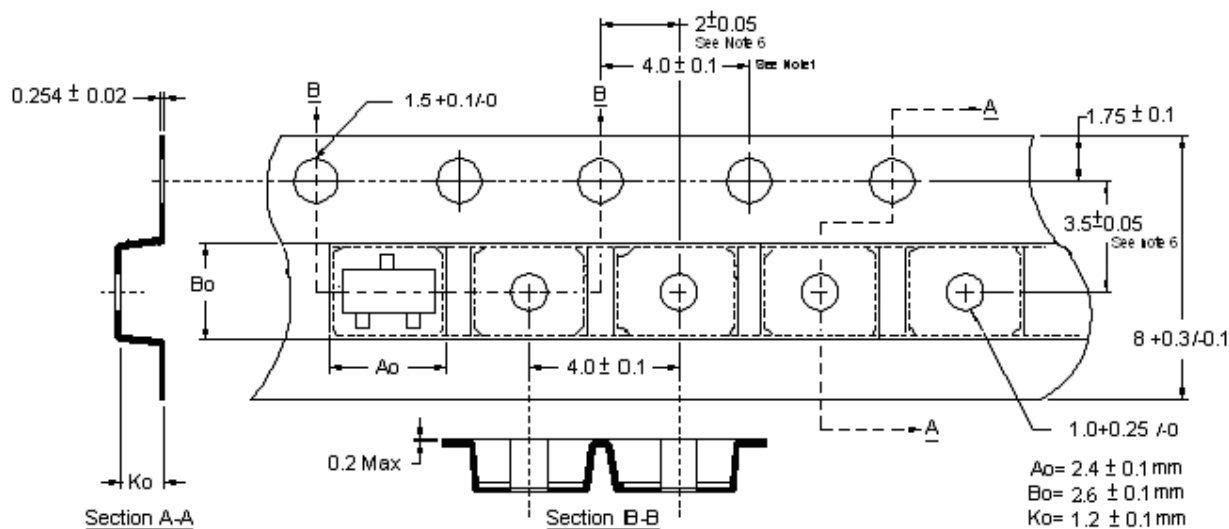
DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.035	0.043	0.900	1.100	E1	0.045	0.053	1.150	1.350
A1	0.000	0.004	0.000	0.100	e	0.026	TYP.	0.650	TYP.
A2	0.035	0.039	0.900	1.000	e1	0.047	0.055	1.200	1.400
b	0.008	0.016	0.200	0.400	L	0.010	0.018	0.260	0.460
c	0.003	0.006	0.080	0.150	L1	0.021	REF.	0.525	REF.
D	0.079	0.087	2.000	2.200	θ	0°	8°	0°	8°
E	0.085	0.096	2.150	2.450					

Reel Dimension



Unit: millimeter

Carrier Tape Dimension



Notes:

1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
2. Camber not to exceed 1mm in 100mm.
3. Material : Conductive black polystyrene.
4. A_0 & B_0 measured on a plane 0.3mm above the bottom of the pocket.
5. K_0 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