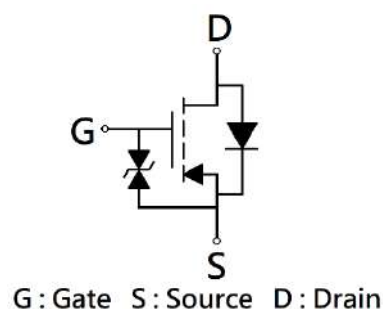
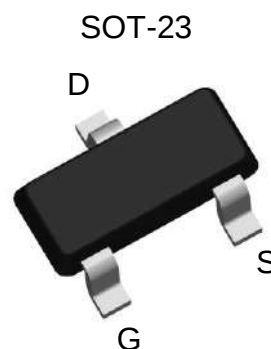


P-C hannel Enhancement Mode MOSFET

Features:

- ESD protected 2.5KV
- Advanced trench process technology
- High density cell design for ultra low on resistance
- Pb-free lead plating and halogen-free package

BV_{DSS}	-150V
$I_D@V_{GS}=-10V, T_A=25^{\circ}C$	-0.69A
$R_{DS(on)(TYP)}$ $V_{GS}=-10V, I_D=-0.5A$	1.01 Ω



Ordering Information

Device	Package	Shipping
KNKP15	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	-150	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ V _{GS} =-10V	I _D	T _A =25°C -0.69 (Note 4)	A
		T _A =70°C -0.50 (Note 4)	
Pulsed Drain Current	I _{DM}	(Note 1&2) -3	
Maximum Power Dissipation	P _D	T _A =25°C 1.25	W
		T _A =70°C 0.8	
ESD susceptibility		(Note 3) 2500	V
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient , max (Note 4)	R _{θJA}	100	°C/W
Thermal Resistance, Junction-to-Case , max	R _{θJC}	50	

Note : 1. Pulse width limited by maximum junction temperature.

2. Pulse width ≤ 300μs, duty cycle ≤ 2%

3. Human body model, 1.5kΩ in series with 100pF.

4. Surface mounted on 1 in² copper pad of FR-4 board, t ≤ 5s; 120°C/W at steady state; 417°C/W when mounted on minimum copper pad.

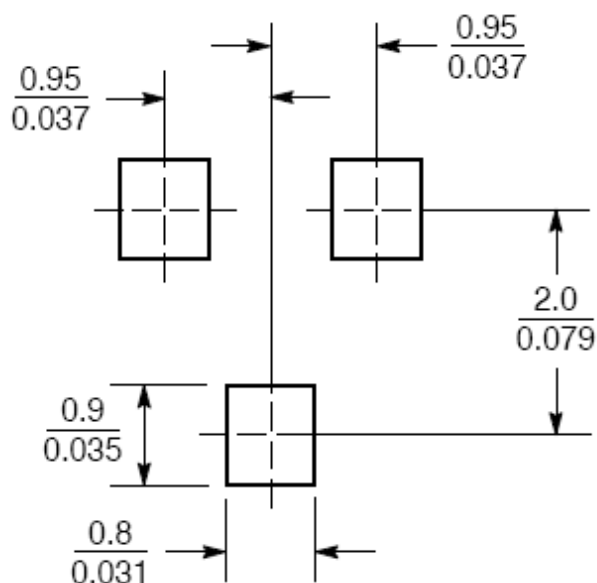
Electrical Characteristics (T_j=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-150	-	-	V	V _{GS} =0V, I _D =-250μA
V _{GS(th)}	-2.0	-3.2	-4.0		V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±10	μA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	-1		V _{DS} =-120V, V _{GS} =0V
*R _{DS(ON)}	-	1.01	1.2	Ω	V _{GS} =-10V, I _D =-0.5A
*G _{FS}	-	1.2	-	S	V _{DS} =-15V, I _D =-0.5A
Dynamic					
C _{iss}	-	269	-	pF	V _{DS} =-25V, V _{GS} =0V, f=1MHz
C _{oss}	-	29	-		
C _{rss}	-	14	-		
*t _{d(ON)}	-	19.6	-	ns	V _{DS} =-75V, I _D =-0.5A, V _{GS} =-10V, R _G =6Ω
*t _r	-	22.4	-		
*t _{d(OFF)}	-	60.4	-		
*t _f	-	233.2	-		

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
*Qg	-	6.5	-	nC	V _{DS} =-75V, I _D =-0.5A, V _{GS} =-10V
*Qgs	-	1.3	-		
*Qgd	-	1.8	-		
Source-Drain Diode					
I _S	-	-	-0.69	A	
I _{SM}	-	-	-3		
*V _{SD}	-	-0.8	-1.2	V	V _{GS} =0V, I _S =-1A
*t _{rr}	-	25	-	ns	I _S =-0.5A, V _{GS} =0V, dI/dt=100A/μs
*Q _{rr}	-	24	-	nC	

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

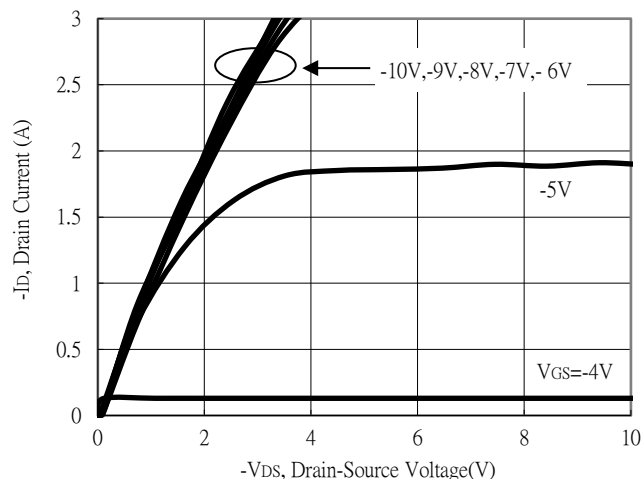
Recommended Soldering Footprint



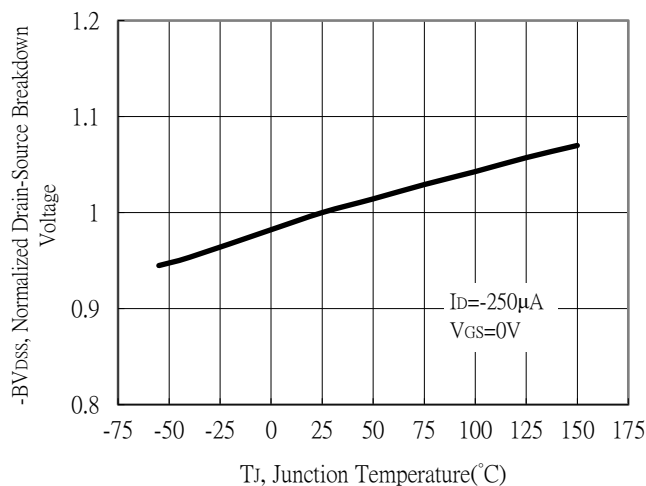
Unit : $\frac{\text{mm}}{\text{inches}}$

Typical Characteristics

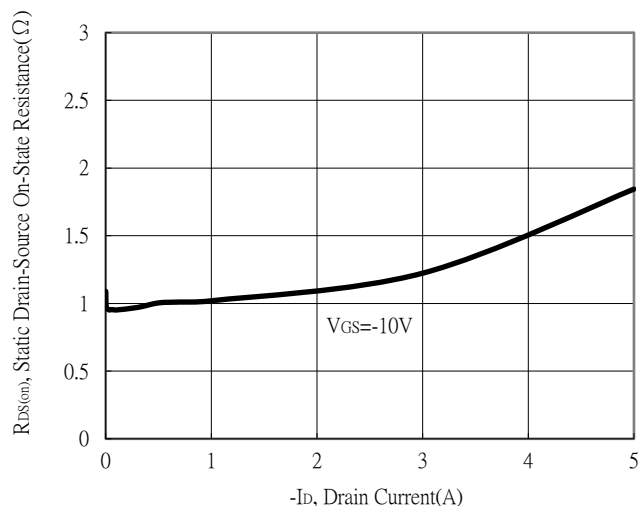
Typical Output Characteristics



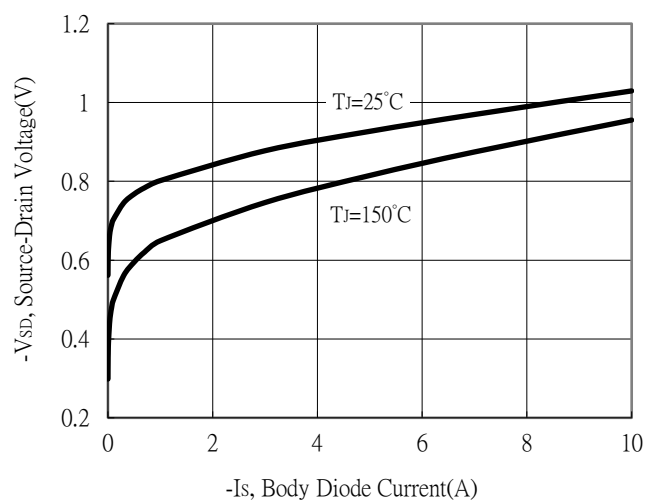
Breakdown Voltage vs Ambient Temperature



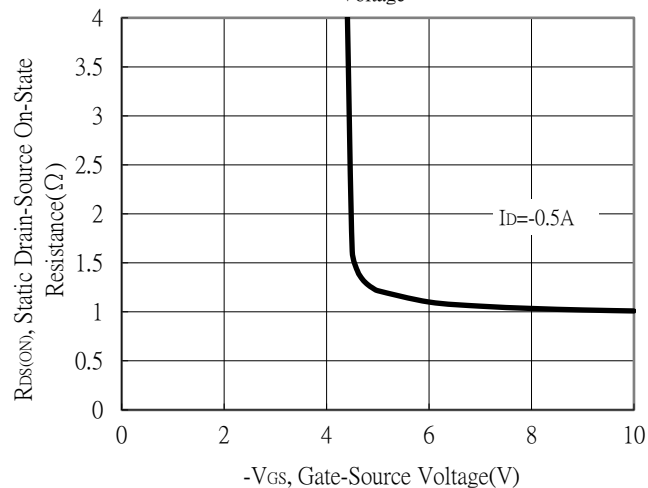
Static Drain-Source On-State resistance vs Drain Current



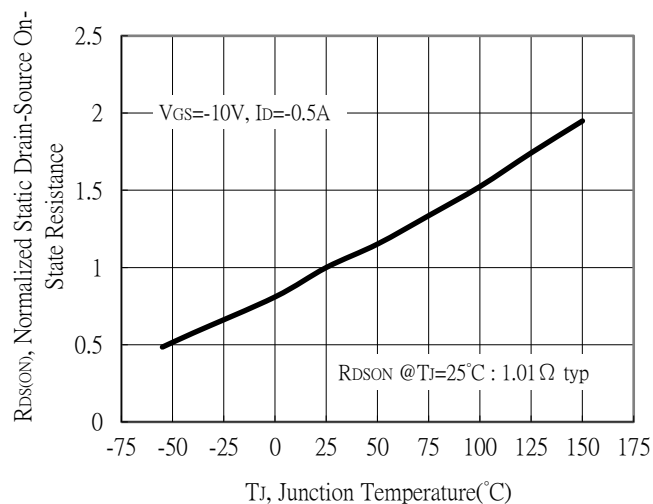
Body Diode Current vs Source-Drain Voltage



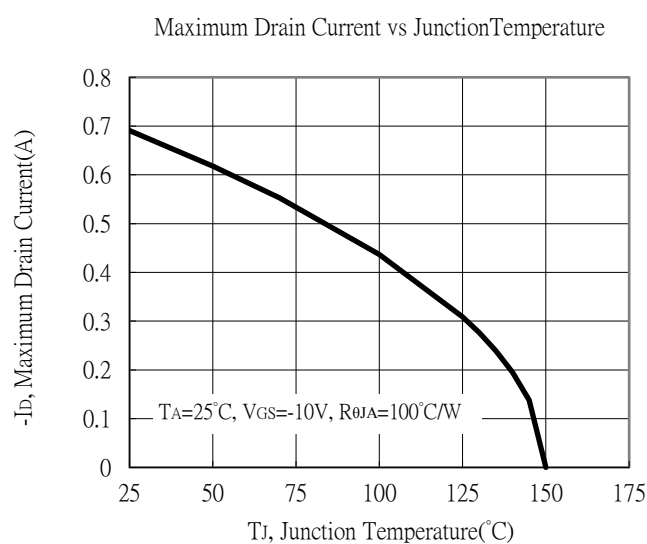
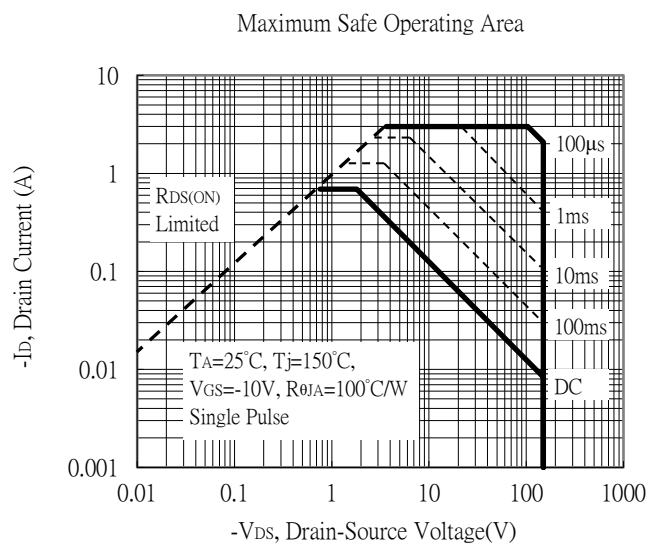
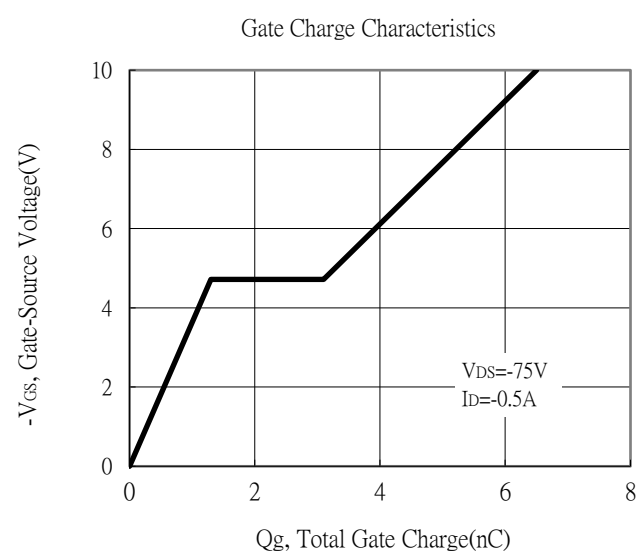
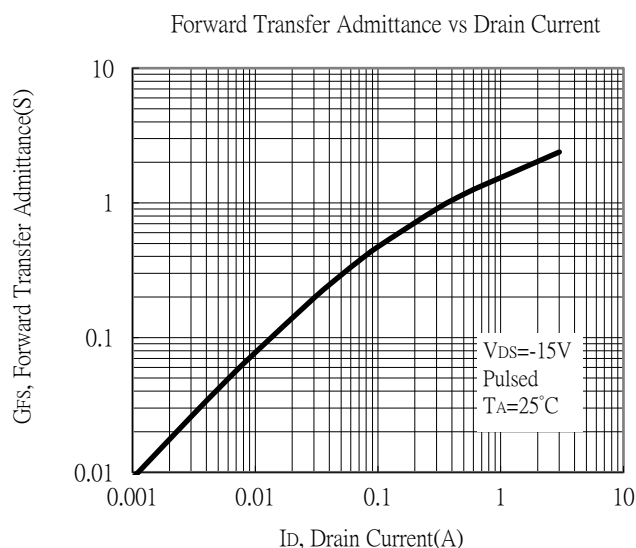
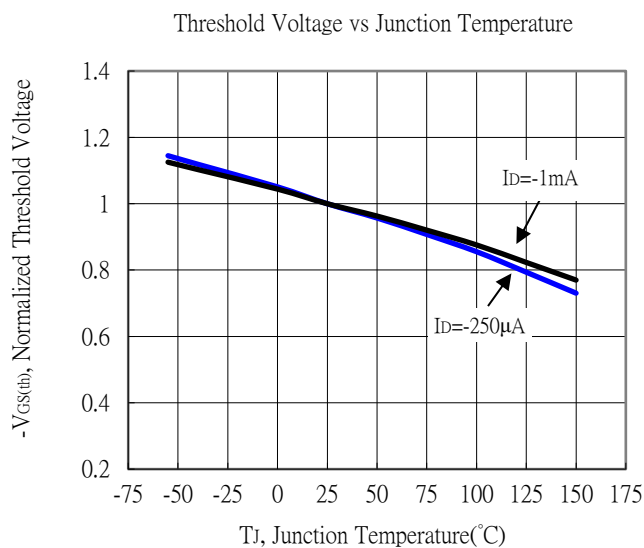
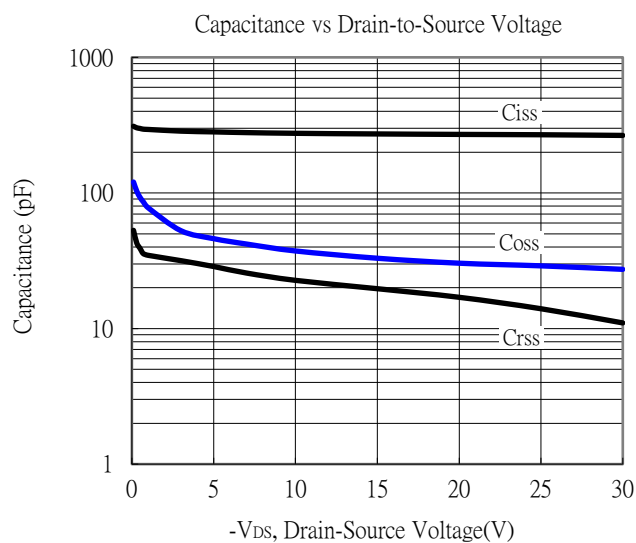
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

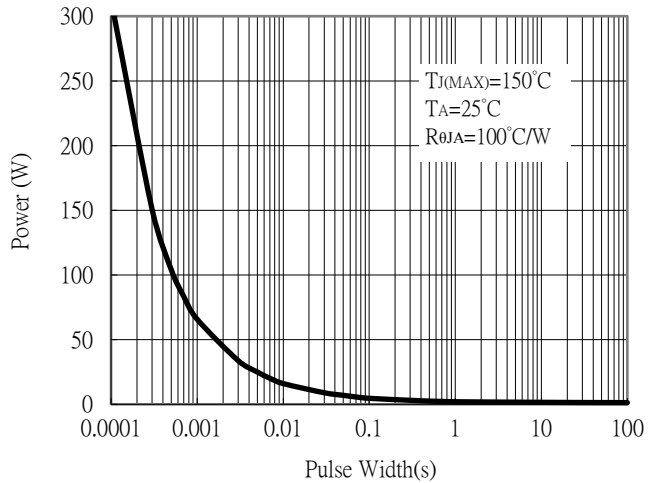


Typical Characteristics (Cont.)

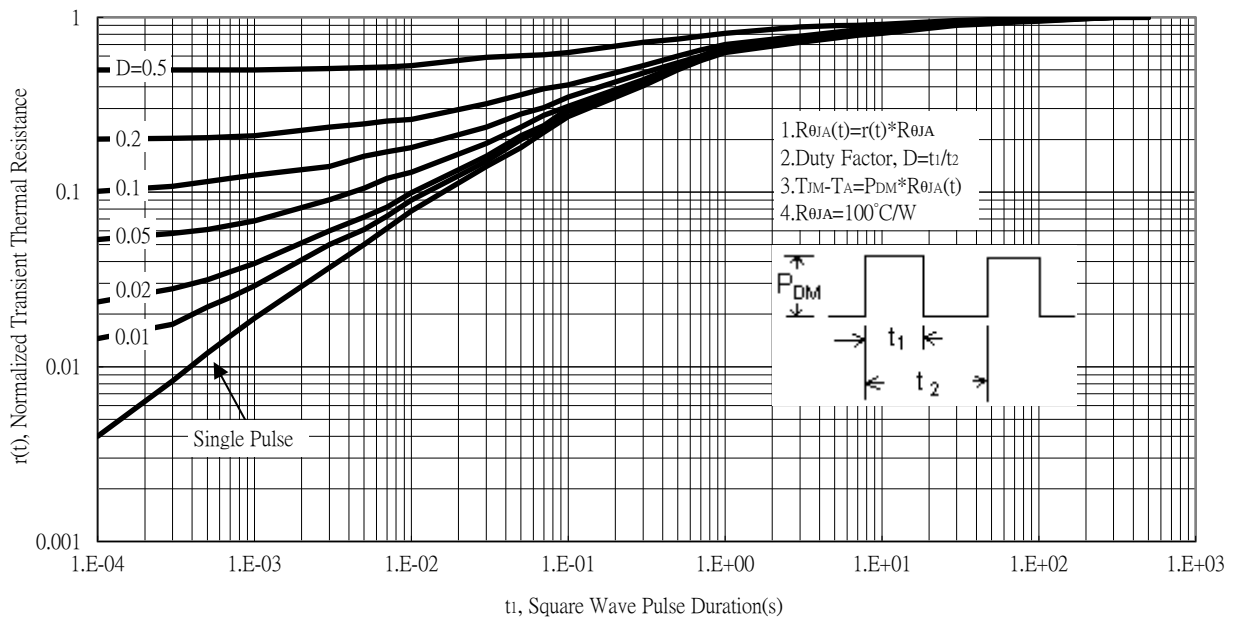


Typical Characteristics (Cont.)

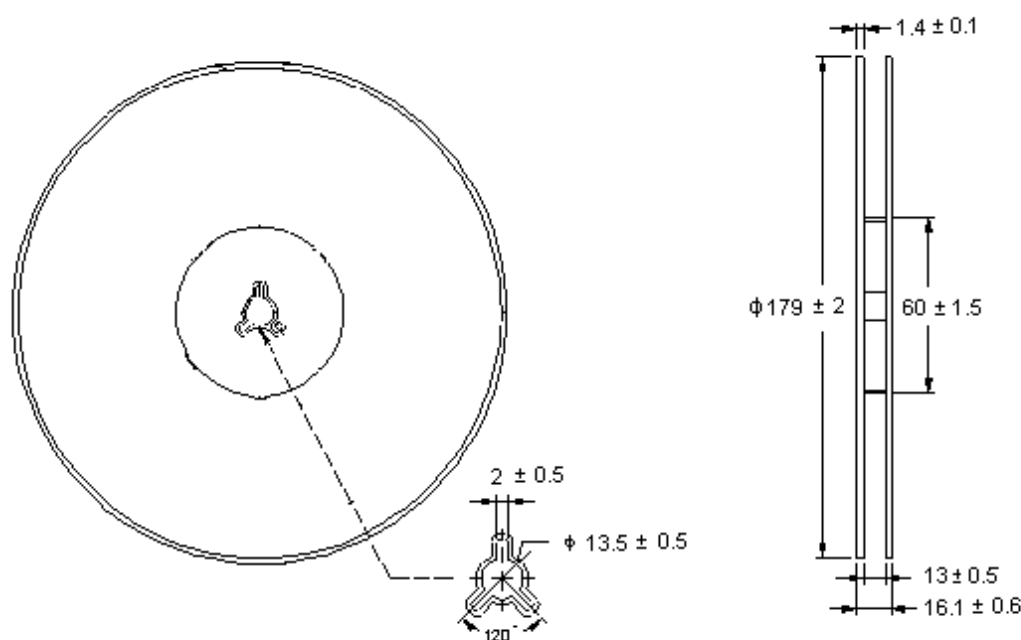
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves

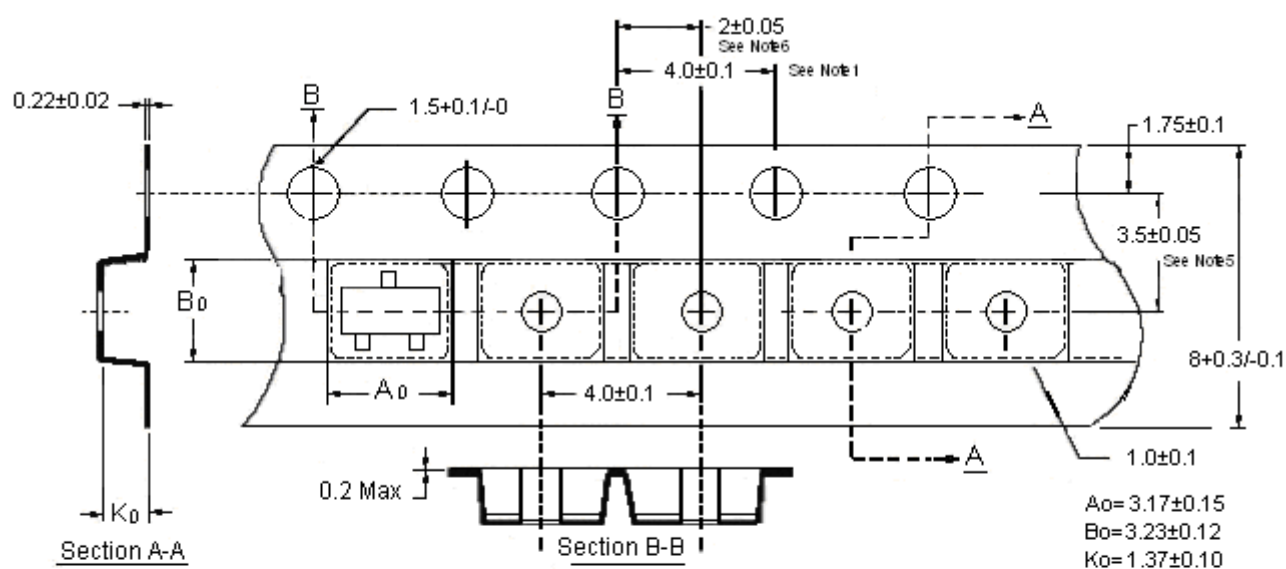


Reel Dimension



Unit: millimeter

Carrier Tape Dimension

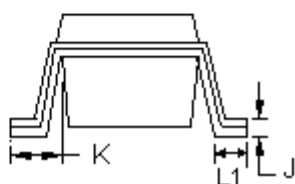
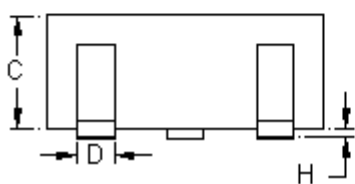
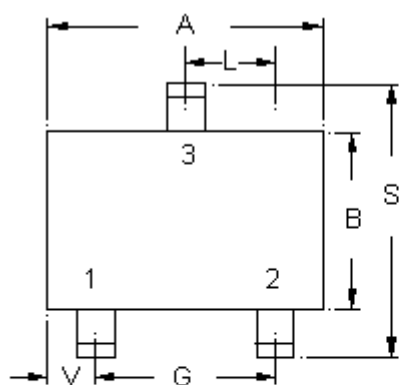


Notes:

1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. 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.

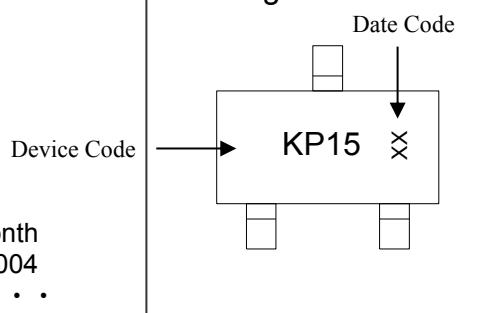
Unit : millimeter

SOT-23 Dimension



Date Code: Year+Month
 Year: 3→2003, 4→2004
 Month: 1→1, 2→2, . . .
 9→9, A→10, B→11, C→12

Marking:



3-Lead SOT-23 Plastic
 Surface Mounted Package

Style: Pin 1.Gate 2.Source 3.Drain

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50