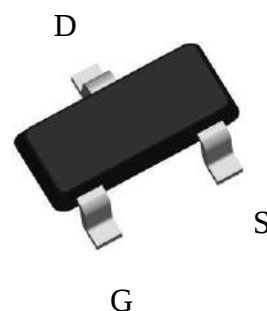


N-Channel Enhancement Mode MOSFET

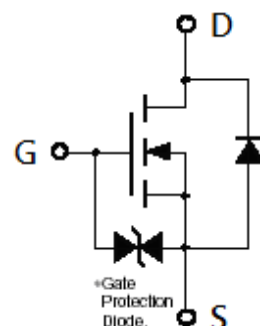
Features:

- ESD protected gate, typical 3kV (HBM)
- High speed switching
- Easily designed drive circuits
- Low-voltage drive
- Easy to use in parallel
- RoHS compliant package

SOT-523



BV_{DSS}	30V
$I_D @ V_{GS}=10V, T_A=25^{\circ}C$	0.35A
$R_{DS(ON)} @ V_{GS}=10V, I_D=0.2A$	0.35 Ω
$R_{DS(ON)} @ V_{GS}=4.5V, I_D=0.2A$	0.45 Ω
$R_{DS(ON)} @ V_{GS}=2.5V, I_D=0.1A$	0.75 Ω



G : Gate S : Source D : Drain

Ordering Information

Device	Package	Shipping
KWINK8-5	SOT-523 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

Absolute Maximum Ratings (T_A=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ V _{GS} =10V, T _A =25°C	I _D	0.35	A
Continuous Drain Current @ V _{GS} =10V, T _A =70°C		0.28	
Pulsed Drain Current *a	I _{DM}	1.4	
Continuous Body Diode Forward Current @ T _A =25°C	I _S	0.1	
ESD susceptibility *b	V _{ESD}	3000	V
Total Power Dissipation @ T _A =25°C	P _D	0.15	W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55~+150	°C

Thermal Data

Parameter	Symbol	Steady State	Unit
Thermal Resistance, Junction-to-ambient	R _{θJA}	833	°C/W

Note:

*a. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C. Ratings are based on low frequency and low duty cycles to keep initial T_J=25°C.

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

Characteristics (T_A=25°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)}	0.7	-	1.6		V _{DS} =V _{GS} , I _D =250μA
G _{FS}	-	0.4	-	S	V _{DS} =10V, I _D =0.2A
I _{GSS}	-	-	±10	μA	V _{GS} =±16V, V _{DS} =0V
I _{DSS}	-	-	1		V _{DS} =24V, V _{GS} =0V
R _{DS(ON)}	-	0.35	0.7	Ω	V _{GS} =10V, I _D =0.2A
	-	0.45	1		V _{GS} =4.5V, I _D =0.2A
	-	0.75	6.5		V _{GS} =2.5V, I _D =0.2A
Dynamic					
C _{iss}	-	29	-	pF	V _{DS} =25V, V _{GS} =0V, f=1MHz
C _{oss}	-	15	-		
C _{rss}	-	4	-		
Q _g *1, 2	-	1.7	-	nC	V _{DS} =15V, I _D =0.2A, V _{GS} =10V
Q _{gs} *1, 2	-	0.7	-		
Q _{gd} *1, 2	-	0.3	-		
t _{d(ON)} *1, 2	-	3.2	-	ns	V _{DS} =15V, I _D =0.2A, V _{GS} =10V, R _{GS} =6Ω
t _r *1, 2	-	16	-		
t _{d(OFF)} *1, 2	-	10	-		
t _f *1, 2	-	14	-		
Source-Drain Diode					
V _{SD} *1	-	0.8	1.2	V	I _S =0.2A, V _{GS} =0V
t _{rr}	-	5	-	ns	I _F =0.2A, dI _F /dt=100A/μs
Q _{rr}	-	1.2	-	nC	

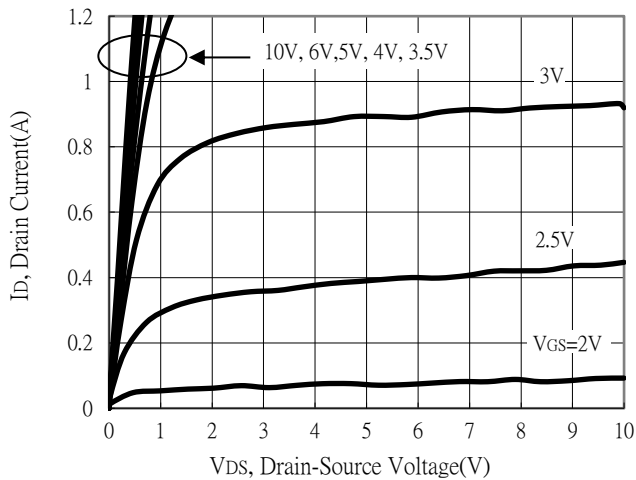
Note:

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

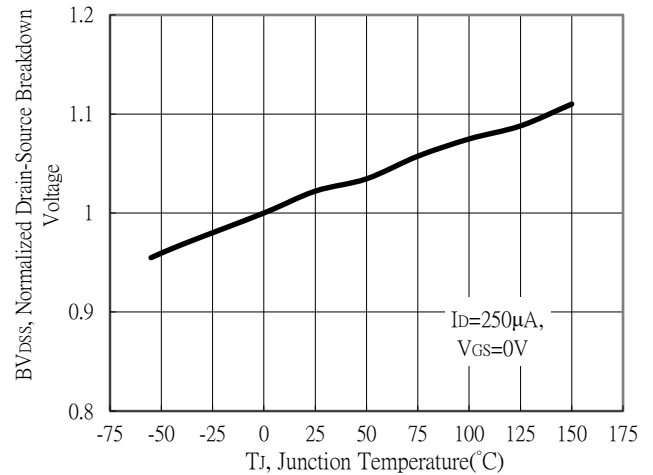
*2. Independent of operating temperature

Typical Characteristics

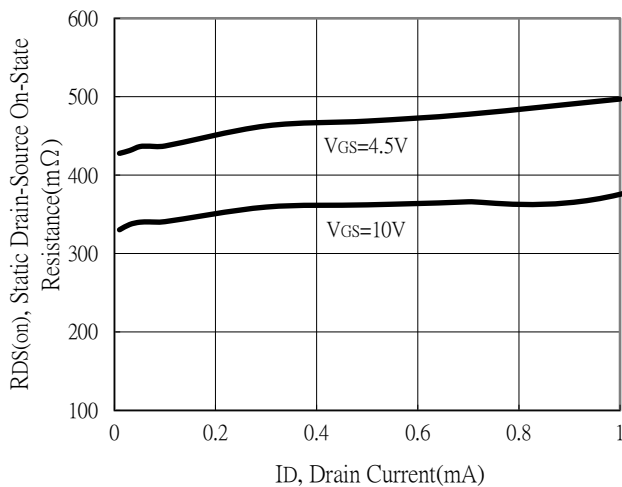
Typical Output Characteristics



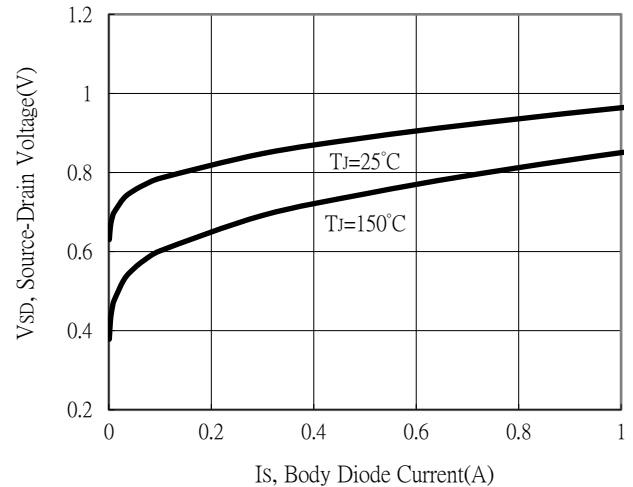
Breakdown Voltage vs Ambient Temperature



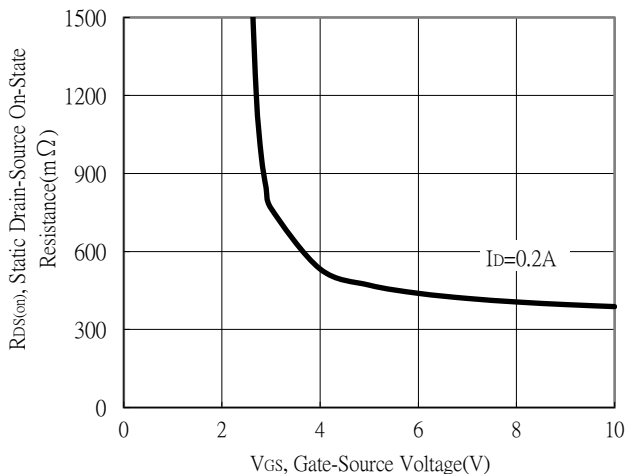
Static Drain-Source On-State resistance vs Drain Current



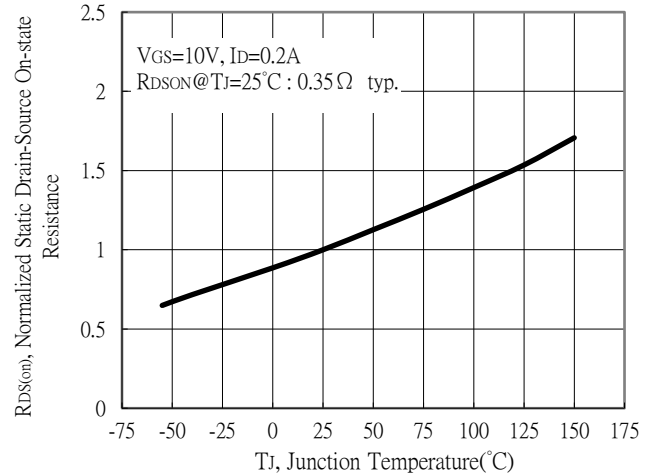
Body Diode Current vs Source-Drain Voltage



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

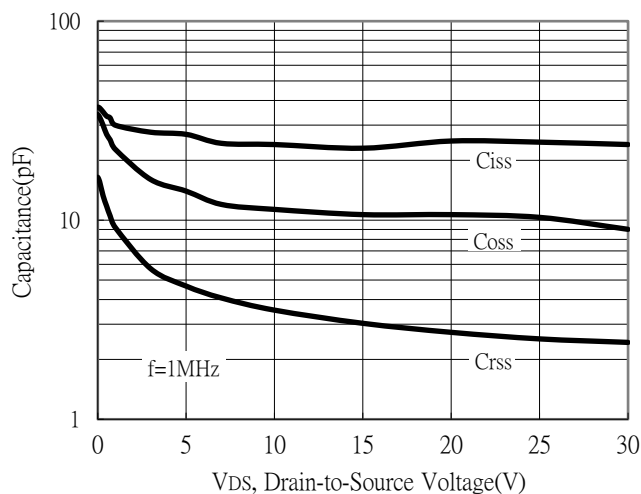


Drain-Source On-State Resistance vs Junction Temperature

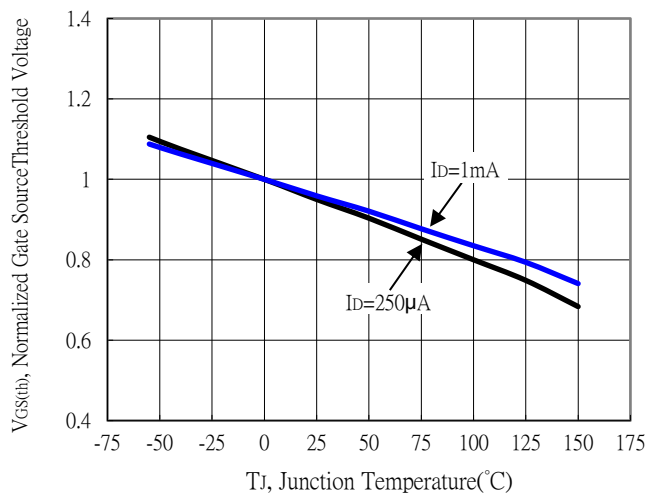


Typical Characteristics (Cont.)

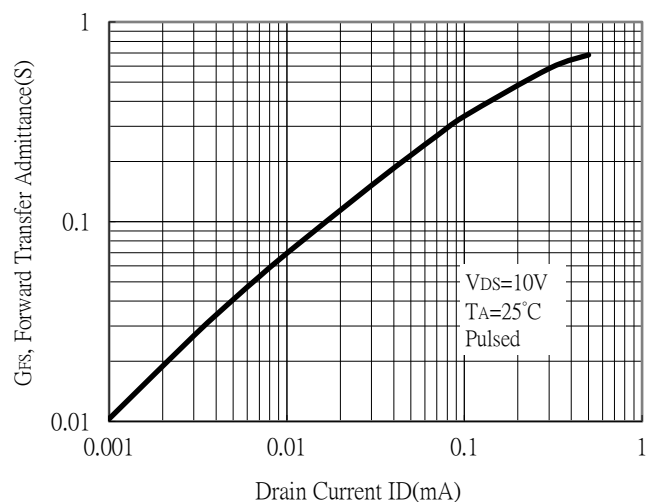
Capacitance vs Drain-to-Source Voltage



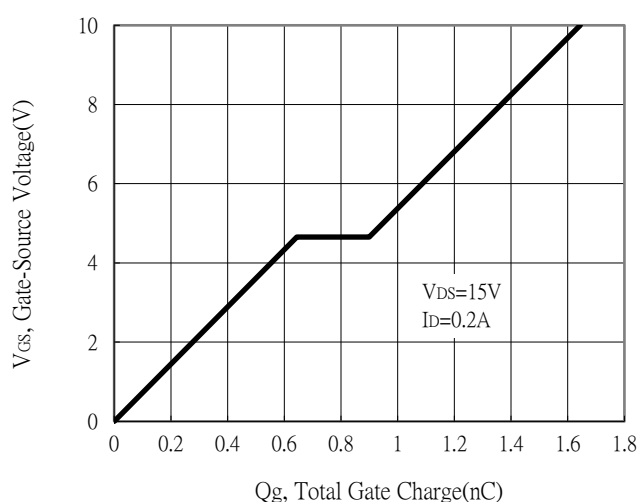
Threshold Voltage vs Junction Temperature



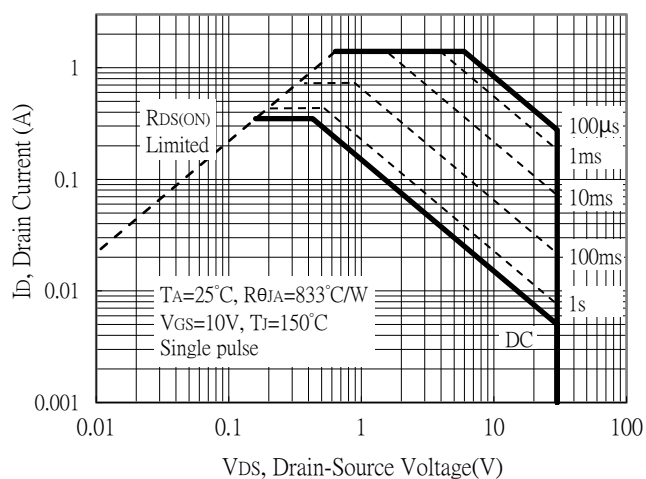
Forward Transfer Admittance vs Drain Current



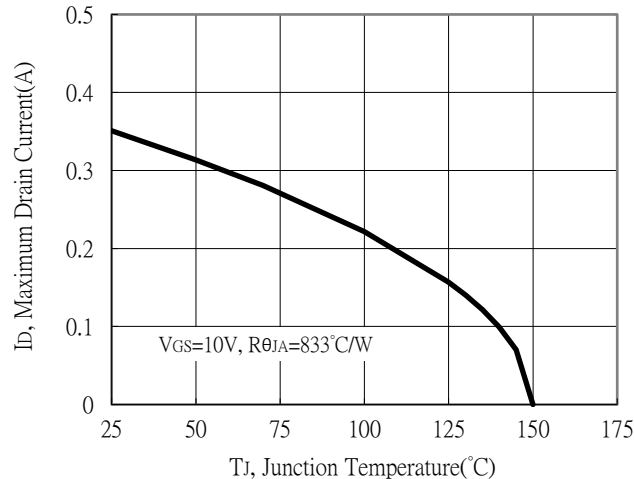
Gate Charge Characteristics



Maximum Safe Operating Area

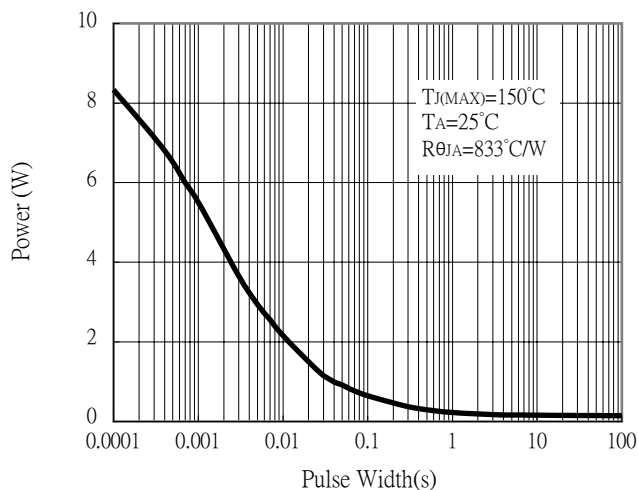


Maximum Drain Current vs Junction Temperature

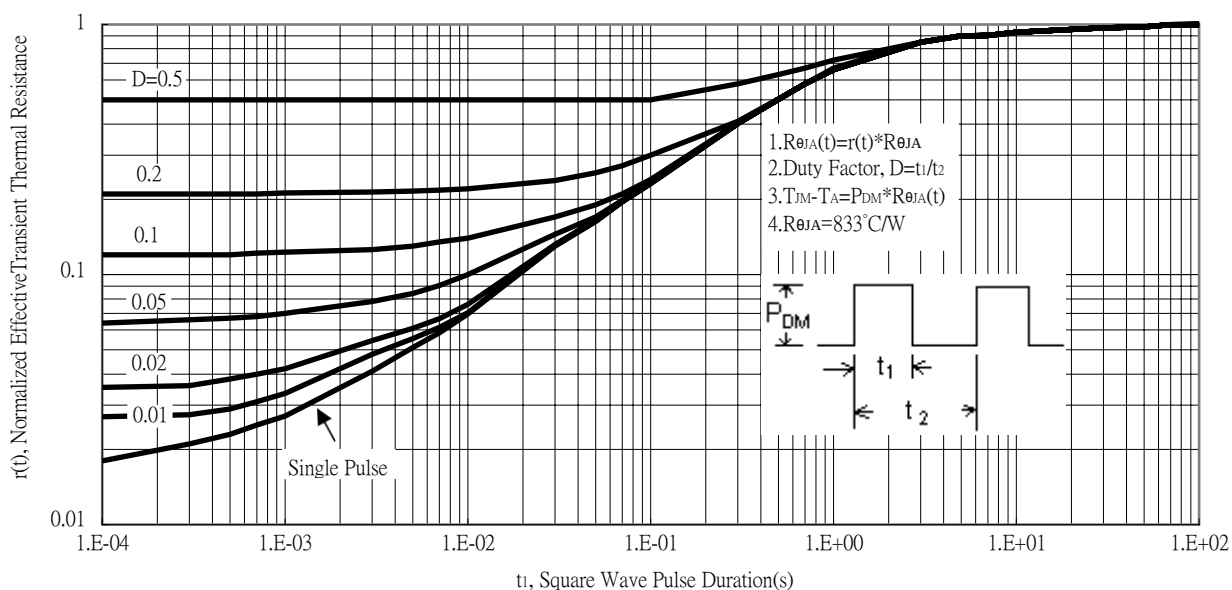


Typical Characteristics (Cont.)

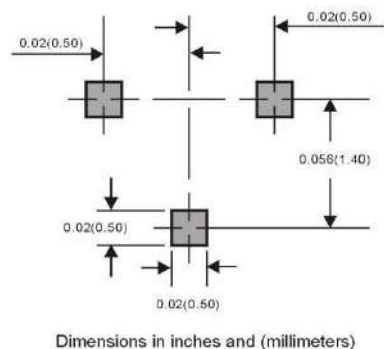
Single Pulse Power Rating, Junction to Ambient



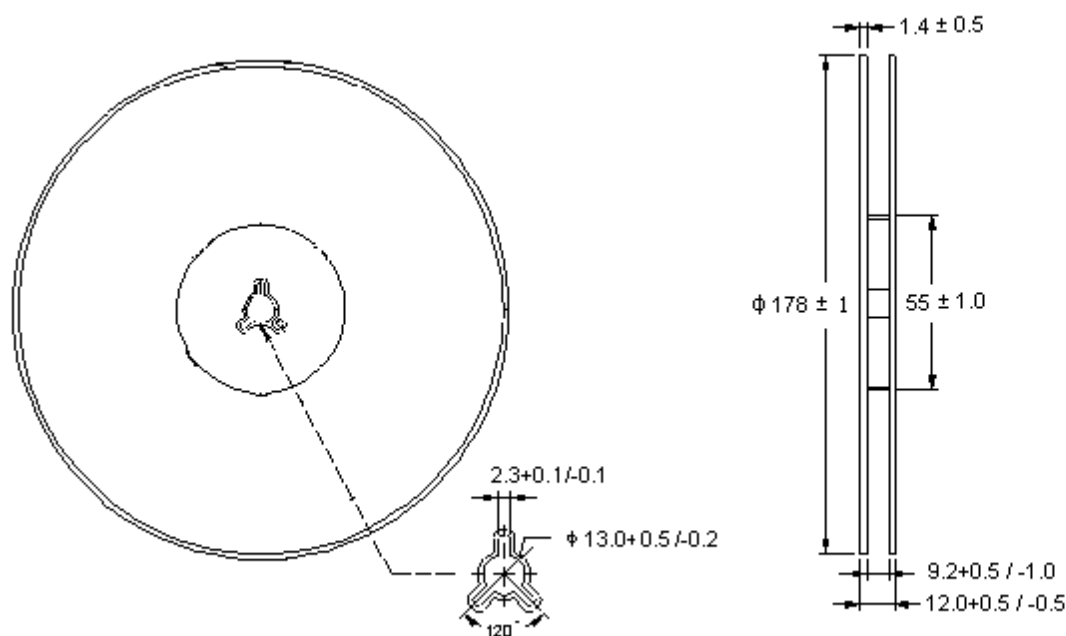
Transient Thermal Response Curves



Recommended Soldering Footprint

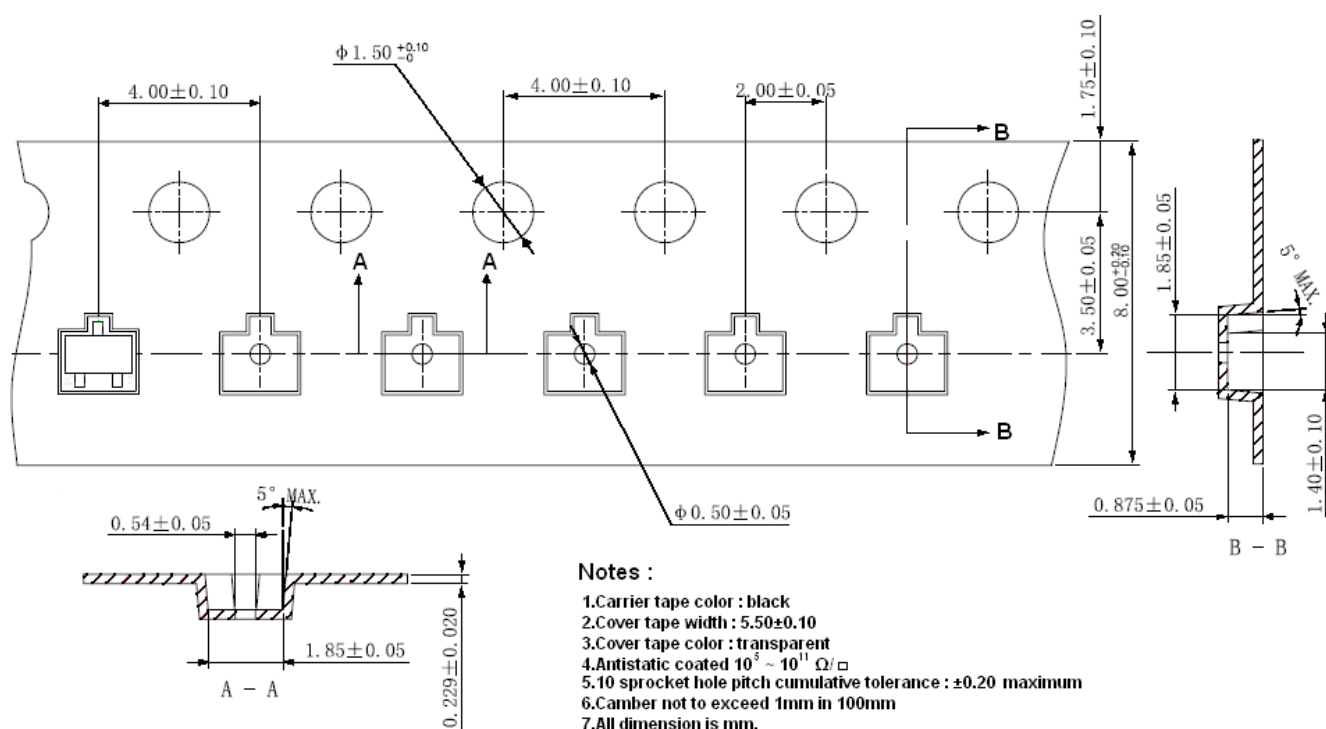


Reel Dimension



Unit: millimeter

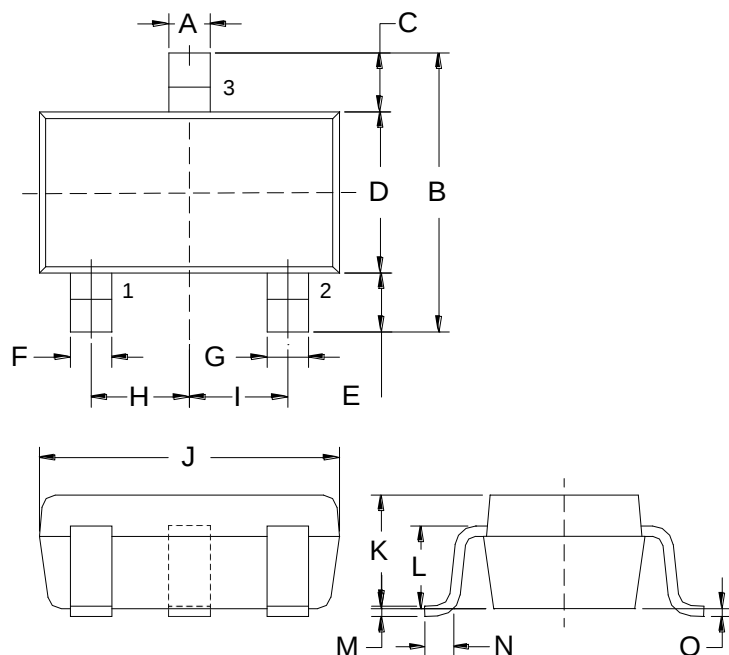
Carrier Tape Dimension



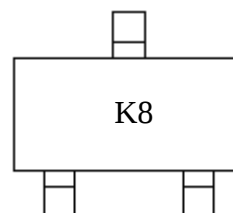
Notes :

- 1.Carrier tape color : black
- 2.Cover tape width : 5.50±0.10
- 3.Cover tape color : transparent
- 4.Antistatic coated $10^8 \sim 10^{11} \Omega/\square$
- 5.10 sprocket hole pitch cumulative tolerance : ±0.20 maximum
- 6.Camber not to exceed 1mm in 100mm
- 7.All dimension is mm.

SOT-523 Dimension



Marking:



3-Lead SOT-523 Plastic
Surface Mounted Package

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

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0079	0.0157	0.20	0.40	I	*0.0197	-	*0.50	-
B	0.0591	0.0669	1.50	1.70	J	0.0610	0.0650	1.55	1.65
C	0.0118	0.0197	0.30	0.50	K	0.0276	0.0315	0.70	0.80
D	0.0295	0.0335	0.75	0.85	L	0.0224	0.0248	0.57	0.63
E	0.0118	0.0197	0.30	0.50	M	0.0020	0.0059	0.05	0.15
F	0.0039	0.0118	0.10	0.30	N	0.0039	0.0118	0.10	0.30
G	0.0039	0.0118	0.10	0.30	O	0	0.0031	0	0.08
H	*0.0197	-	*0.50	-					