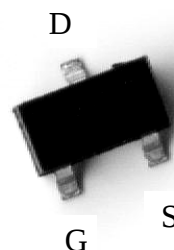


30V N-CHANNEL Enhancement Mode MOSFET

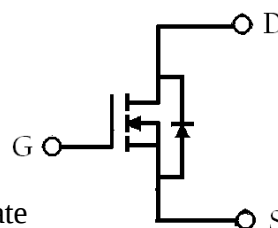
Features:

- Low on-resistance
- Low gate charge
- Excellent thermal and electrical capabilities
- Compact and low profile SOT-23 package
- Pb-free lead plating and halogen-free package

SOT-23



BV _{DSS}		30V
I _D @V _{GS} =10V, T _A =25°C		5.8A
R _{DS(on)} (TYP)	V _{GS} =10V, I _D =5.8A	20mΩ
	V _{GS} =4.5V, I _D =5A	22mΩ
	V _{GS} =2.5V, I _D =4A	27mΩ



G : Gate
S : Source
D : Drain

Ordering Information

Device	Package	Shipping
KW3400N3	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}	30	V
Gate-Source Voltage	V _{GS}	±12	
Continuous Drain Current @ T _A =25°C, V _{GS} =10V (Note 3)	I _D	5.8	A
Continuous Drain Current @ T _A =70°C, V _{GS} =10V (Note 3)		4.6	
Pulsed Drain Current (Note 1, 2)	I _{DM}	30	
Maximum Power Dissipation @ T _A =25°C	P _D	1.38	W
Linear Derating Factor		0.01	W/°C
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

Note : 1. Pulse width limited by maximum junction temperature.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient, max (Note)	R _{θJA}	90	°C/W
Thermal Resistance, Junction-to-Case, max	R _{θJC}	75	

Note : Surface mounted on 1 in² copper pad of FR-4 board, t ≤ 5s ; 270°C/W when mounted on minimum copper pad.

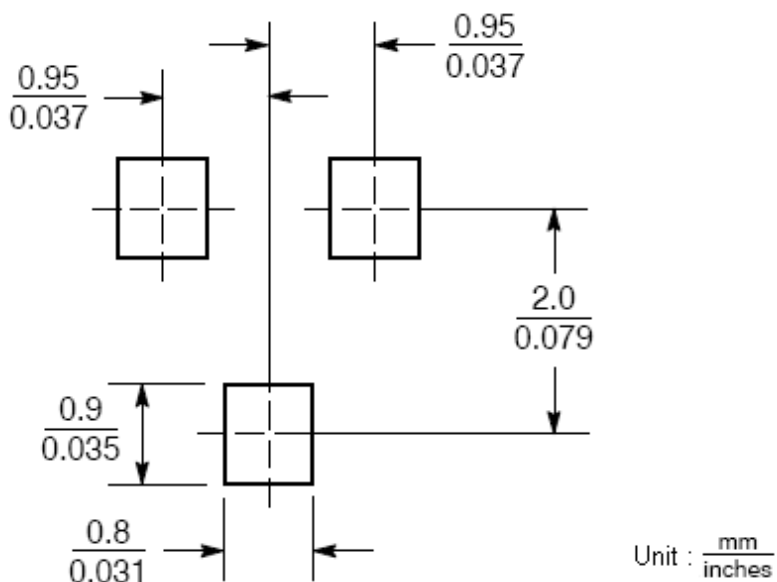
Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	30	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	0.7	-	1.4		V _{DS} =V _{GS} , I _D =250μA
G _{FS}	-	11	-	S	V _{DS} =5V, I _D =5A
I _{GSS}	-	-	±100	nA	V _{GS} =±12V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} =24V, V _{GS} =0V
I _{DSS}	-	-	5		V _{DS} =24V, V _{GS} =0V, T _j =55°C
*R _{DS(ON)}	-	20	26	m 	V _{GS} =10V, I _D =5.8A
	-	22	30		V _{GS} =4.5V, I _D =5A
	-	27	52		V _{GS} =2.5V, I _D =4A
Dynamic					
C _{iss}	-	640	-	pF	V _{DS} =15V, V _{GS} =0V, f=1MHz
C _{oss}	-	64	-		
C _{rss}	-	53	-		
*t _{d(ON)}	-	4.6	-	ns	V _{DS} =15V, V _{GS} =10V, R _G =3Ω , I _D =5.8A
*t _r	-	13.6	-		
*t _{d(OFF)}	-	36.8	-		
*t _f	-	4.4	-		

*Qg	-	7.8	12	nC	V _{DS} =15V, I _D =5.8A, V _{GS} =4.5V
*Qgs	-	1.4	-		
*Qgd	-	1.7	-		
Rg	-	4.6	-	$\wedge$	f=1MHz
Source-Drain Diode					
*V _{SD}	-	0.75	1.0	V	V _{GS} =0V, I _S =1.0A
*I _S	-	-	2.5	A	V _D =V _G =0V, V _S =1.0V
*t _{rr}	-	7.8	-	ns	I _S =5A, V _{GS} =0V, dI/dt=100A/μs
*Q _{rr}	-	3.9	-	nC	

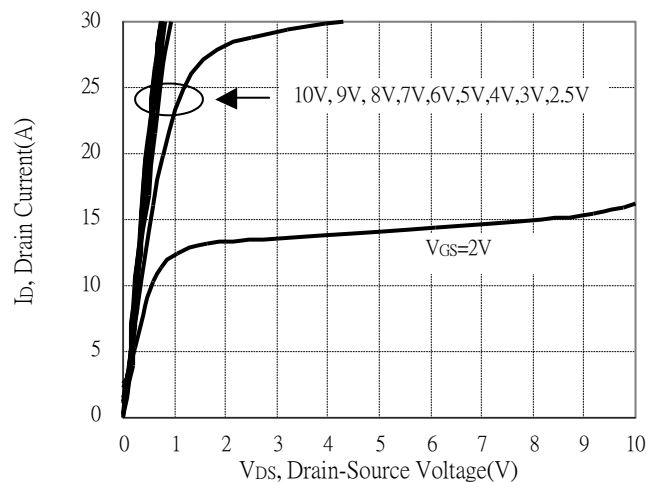
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Recommended Soldering Footprint

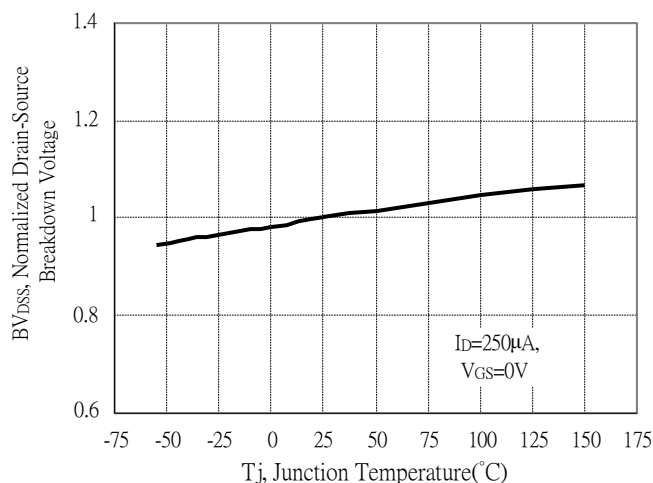


Typical Characteristics

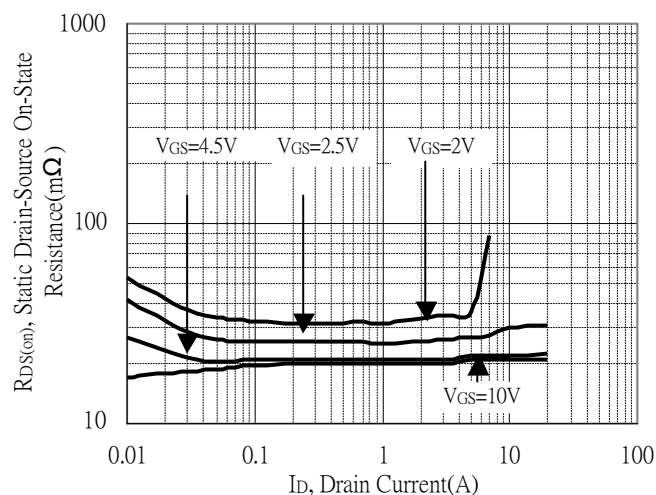
Typical Output Characteristics



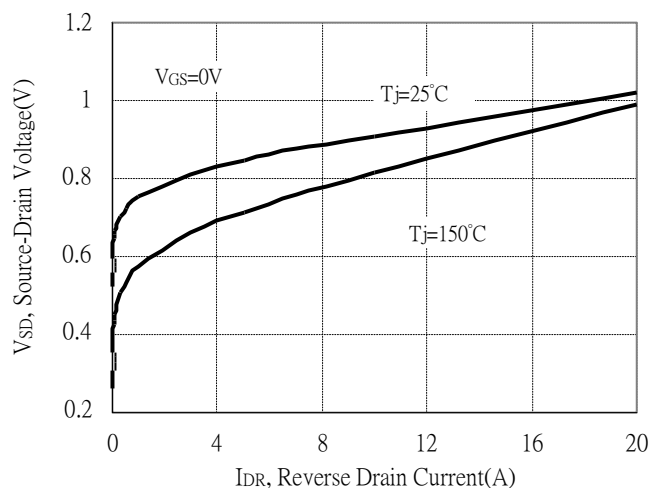
Breakdown Voltage vs Ambient Temperature



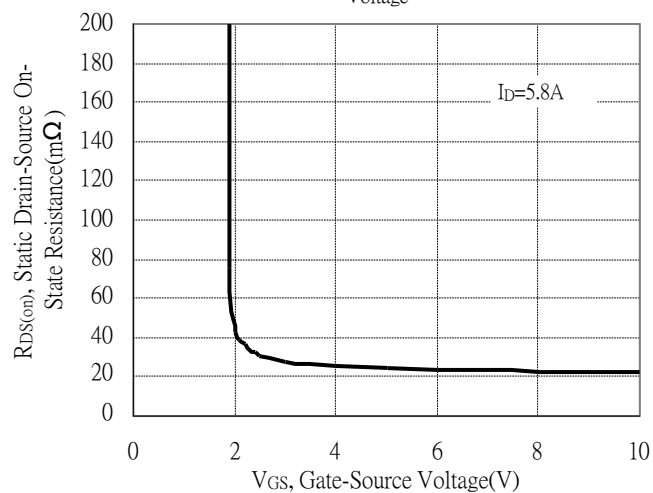
Static Drain-Source On-State resistance vs Drain Current



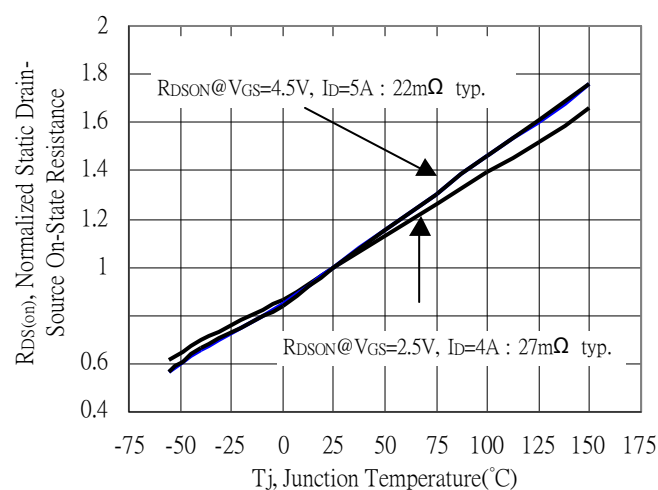
Reverse Drain Current vs Source-Drain Voltage



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

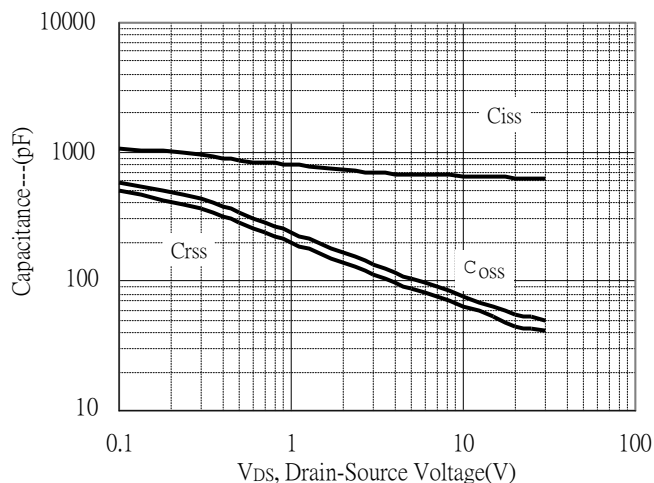


Drain-Source On-State Resistance vs Junction Temperature

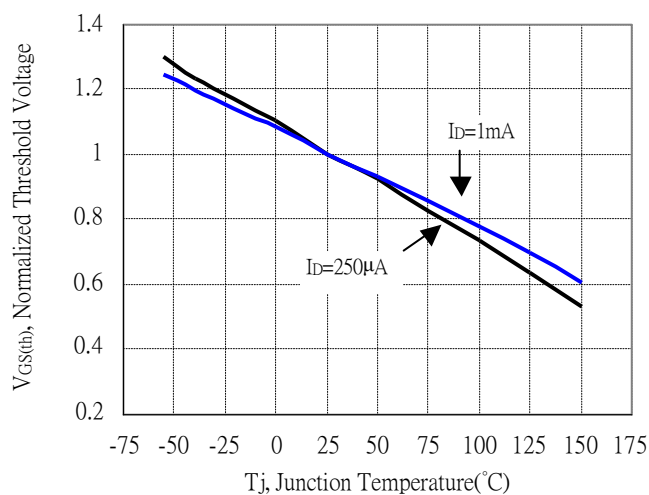


Typical Characteristics(Cont.)

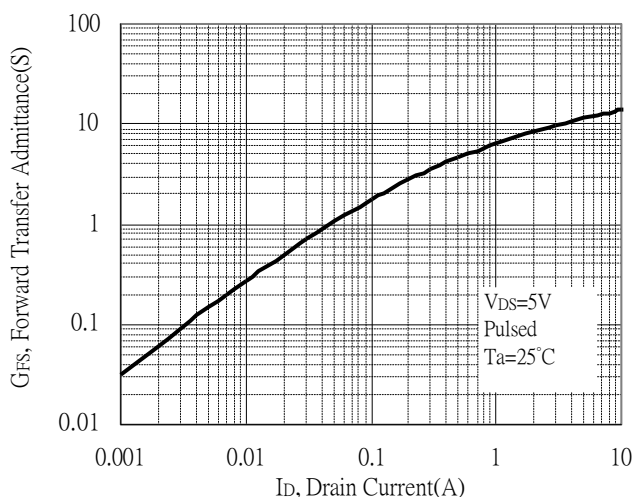
Capacitance vs Drain-to-Source Voltage



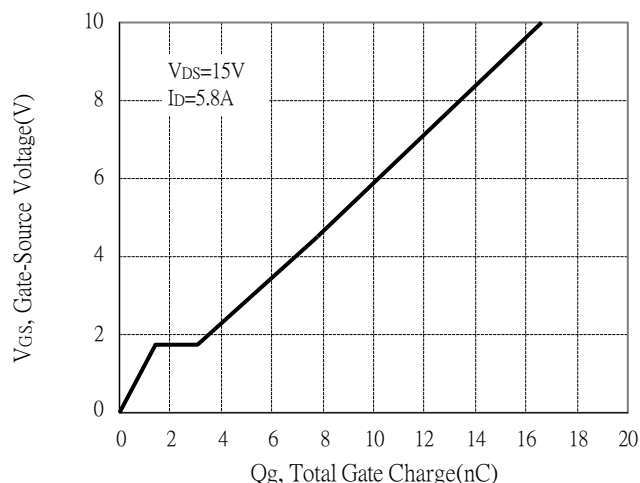
Threshold Voltage vs Junction Temperature



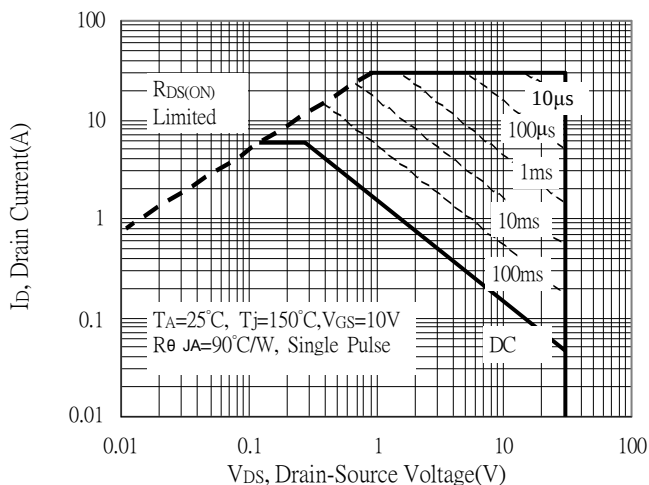
Forward Transfer Admittance vs Drain Current



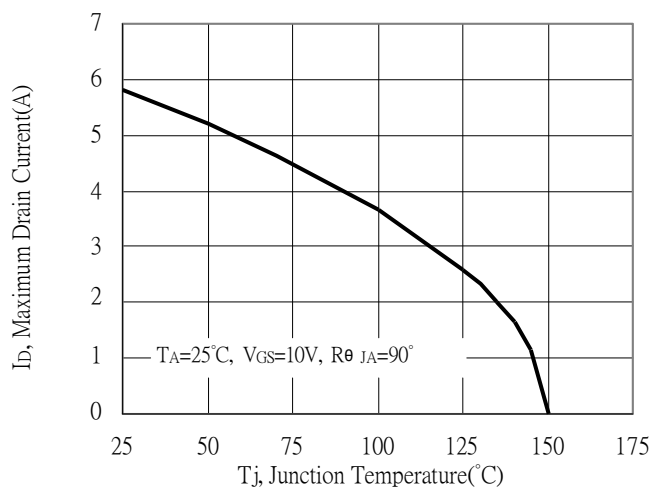
Gate Charge Characteristics



Maximum Safe Operating Area

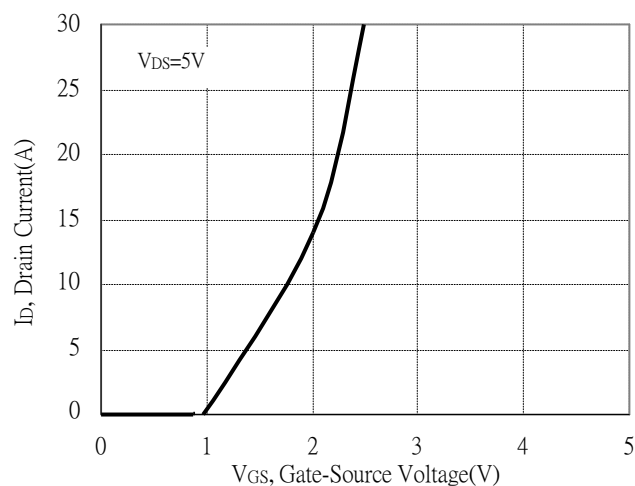


Maximum Drain Current vs Junction Temperature

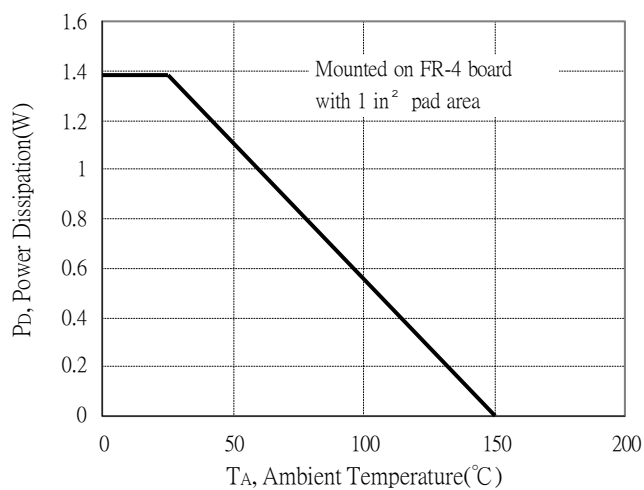


Typical Characteristics(Cont.)

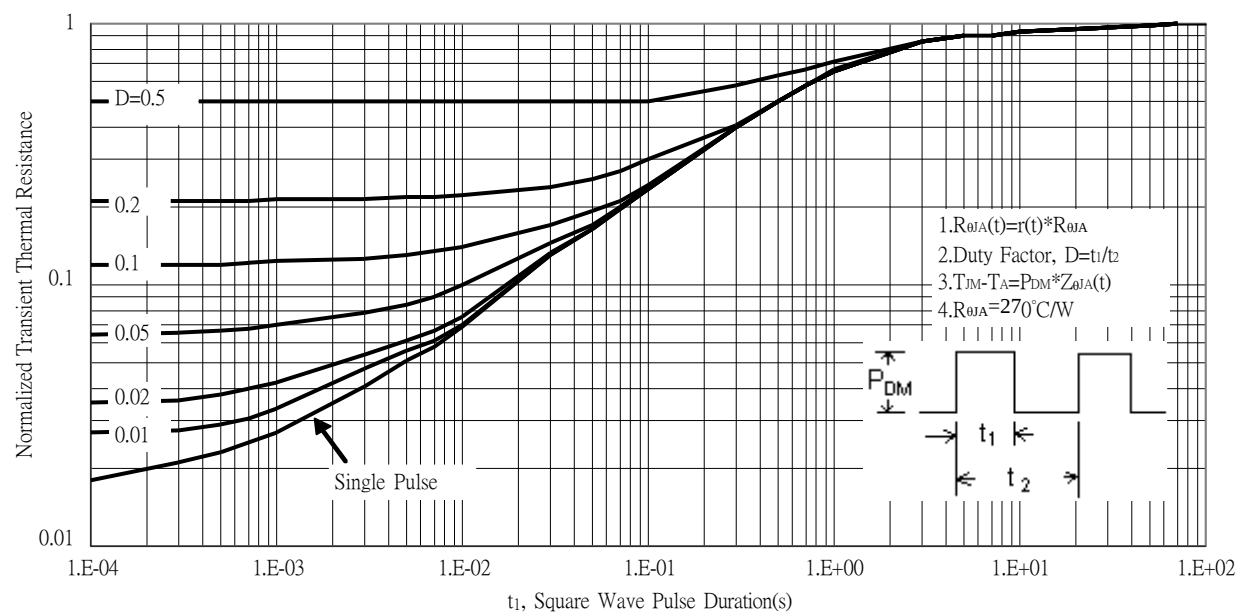
Typical Transfer Characteristics



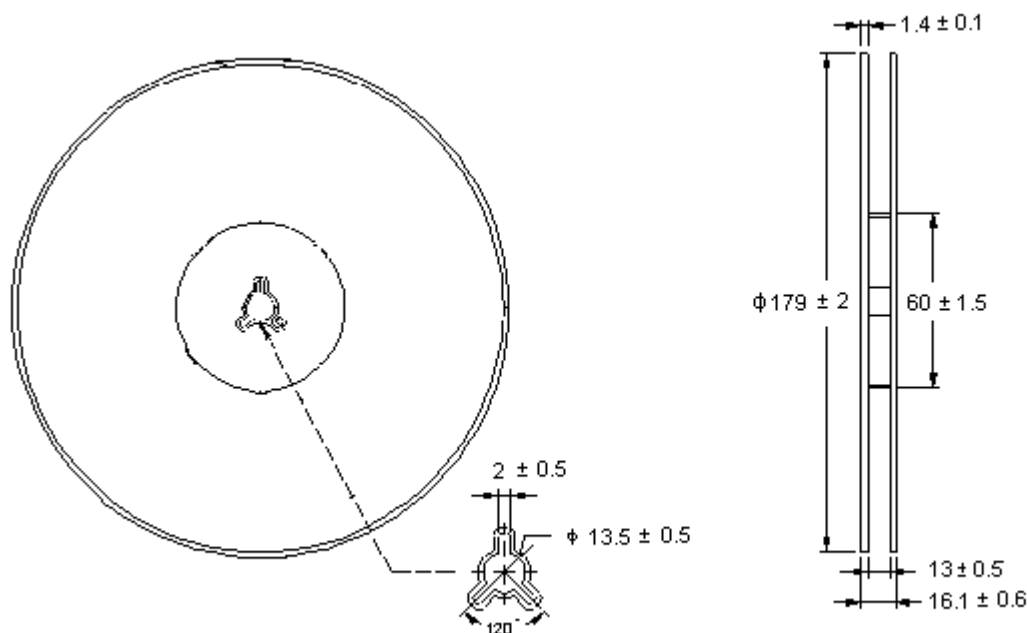
Power Derating Curve



Transient Thermal Response Curves

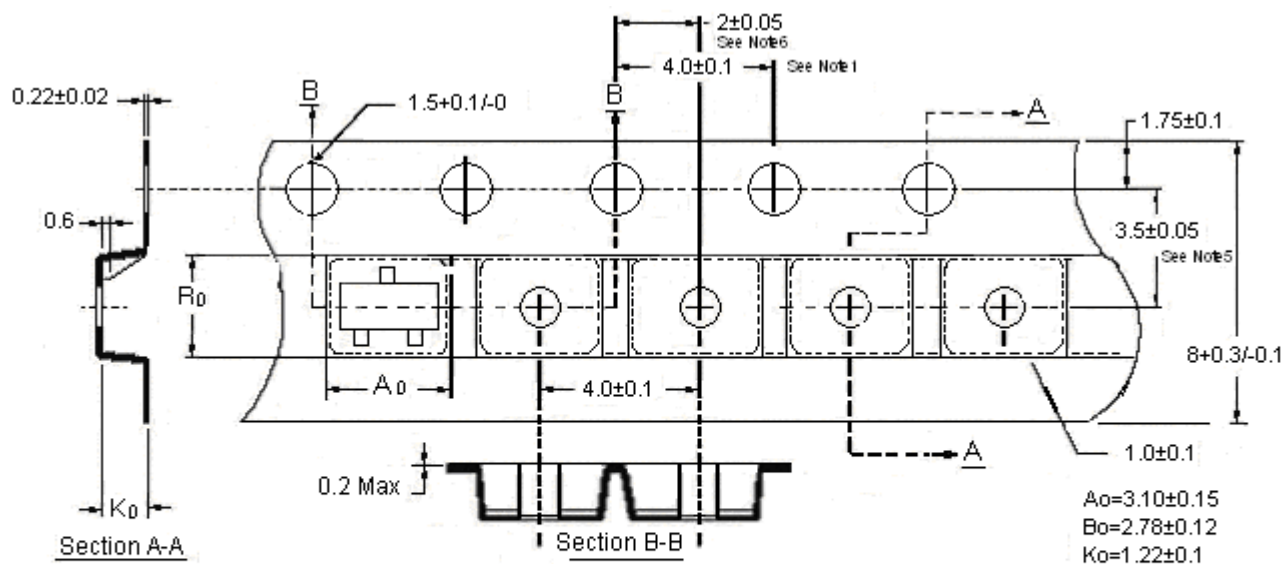


Reel Dimension



Unit: millimeter

Carrier Tape Dimension

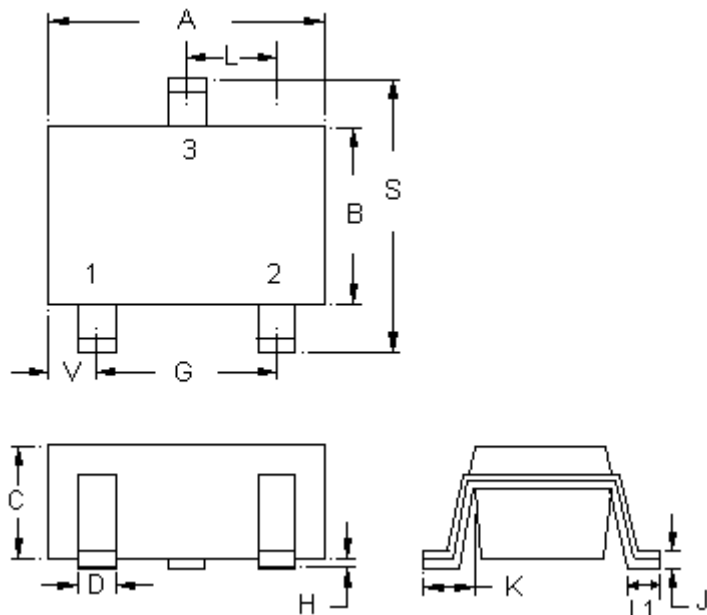


Notes:

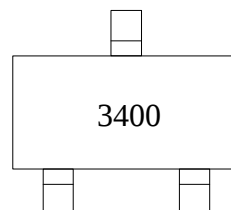
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.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

Unit : millimeter

SOT-23 Dimension



Marking:



3-Lead SOT-23 Plastic
 Surface Mounted Package
 Package Code: N3

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

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	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