

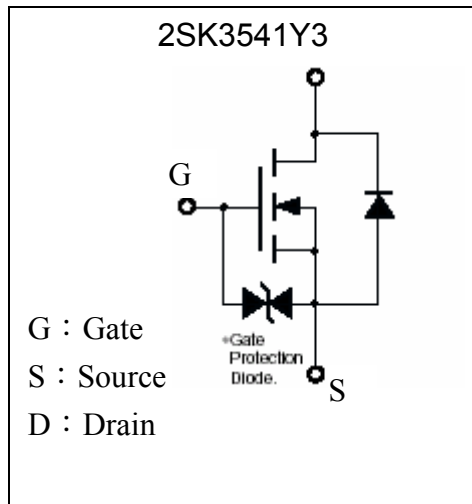
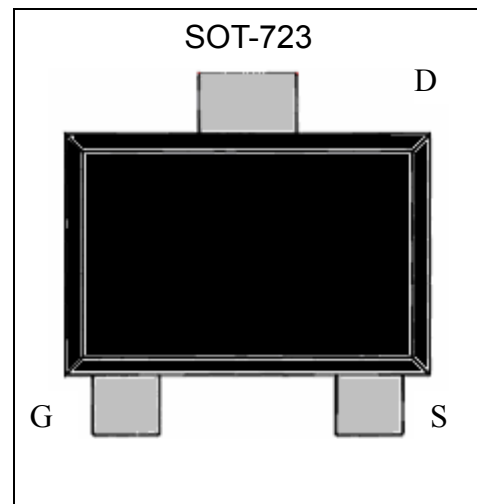
ESD protected N-Channel Enhancement Mode MOSFET

2SK3541Y3

BV_{DSS}	30V
I_D	100mA
$R_{DS(on)}@4V$	$3.4\ \Omega$ (TYP)
$R_{DS(on)}@2.5V$	$6.9\ \Omega$ (TYP)

Description

- Low voltage drive(2.5V drive) makes this device ideal for portable equipment.
- High speed switching
- ESD protected device
- Pb-free lead plating & halogen-free package

Symbol

Outline

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		BV_{DSS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	± 100	mA
	Pulsed	I_{DP}	± 200 *1	mA
Reverse Drain Current	Continuous	I_{DR}	± 100	mA
	Pulsed	I_{DRP}	± 200 *1	mA
Total Power Dissipation		P_D	150 *2	mW
ESD susceptibility			750 *3	V
Operating Junction and Storage Temperature Range		$T_j ; T_{stg}$	-55~+150	°C
Thermal Resistance, Junction-to-Ambient		$R_{th,ja}$	833	°C/W

Note : *1. Pulse Width $\leq 10\mu s$, Duty cycle $\leq 1\%$

*2. With each pin mounted on the recommended lands.

*3. Human body model, $1.5k\ \Omega$ in series with 100pF

**Electrical Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	30	-	-	V	V _{GS} =0, I _D =100μA
V _{GS(th)}	0.8	1.3	1.5	V	V _{DS} =3V, I _D =100μA
I _{GSS}	-	-	±1	μA	V _{GS} =±20V, V _{DS} =0
I _{DSS}	-	-	100	nA	V _{DS} =30V, V _{GS} =0
R _{DS(ON)}	-	3.4	8	Ω	V _{GS} =4V, I _D =10mA
	-	6.9	13		V _{GS} =2.5V, I _D =1mA
G _{FS}	20	50	-	mS	V _{DS} =3V, I _D =10mA
Dynamic					
C _{iss}	-	12.5	-	pF	V _{DS} =5V, V _{GS} =0, f=1MHz
C _{oss}	-	7.3	-		
C _{rss}	-	3.5	-		
t _{d(on)}	-	15	-	ns	V _{DD} ≐5V, I _D =10mA, V _{GS} =5V, R _L =500Ω, R _G =10Ω
t _r	-	35	-		
t _{d(off)}	-	75	-		
t _f	-	75	-		
Source-Drain Diode					
*V _{SD}	-	0.88	1.2	V	V _{GS} =0V, I _S =100mA

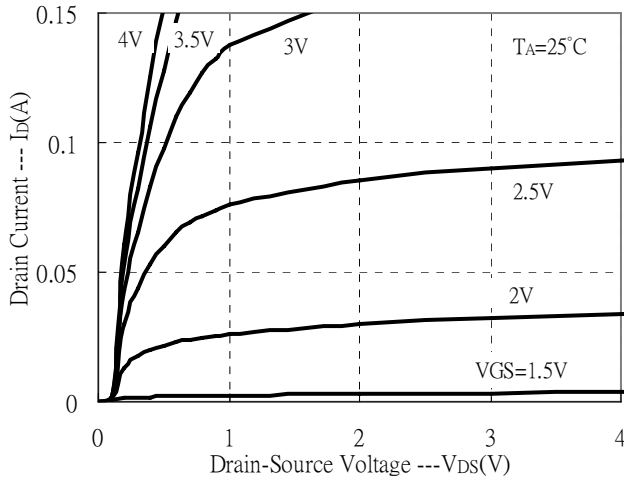
*Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%

Ordering Information

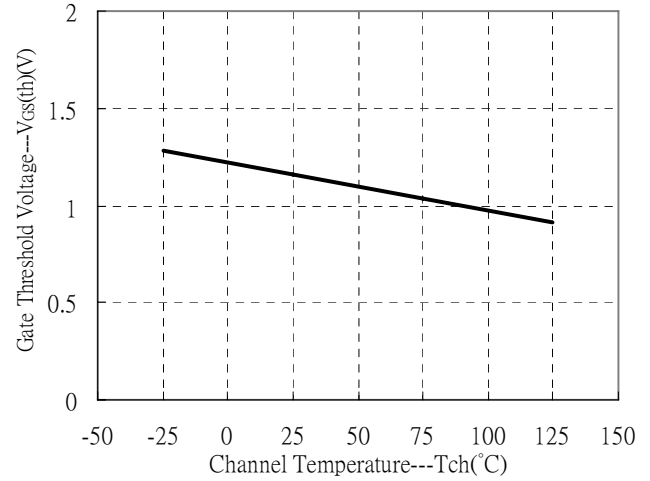
Device	Package	Shipping	Marking
2SK3541Y3	SOT-723 (Pb-free lead plating & halogen-free package)	8000 pcs / Tape & Reel	KN

Typical Characteristics

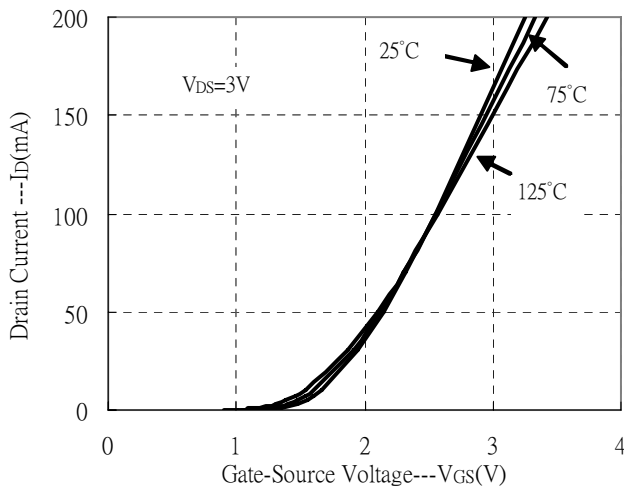
Typical Output Characteristics



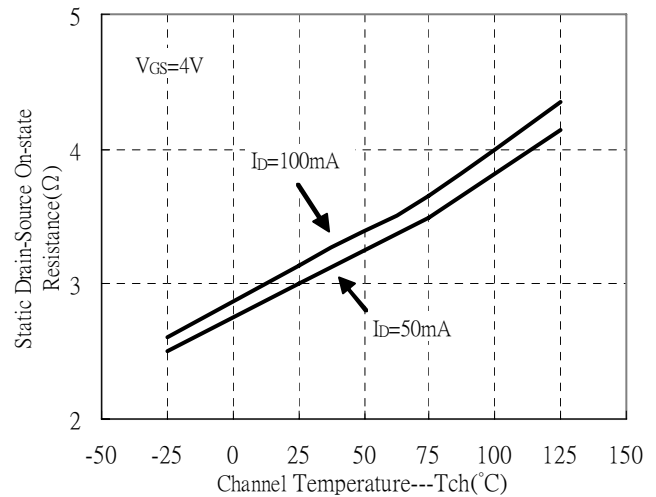
Gate Threshold Voltage vs Channel Temperature



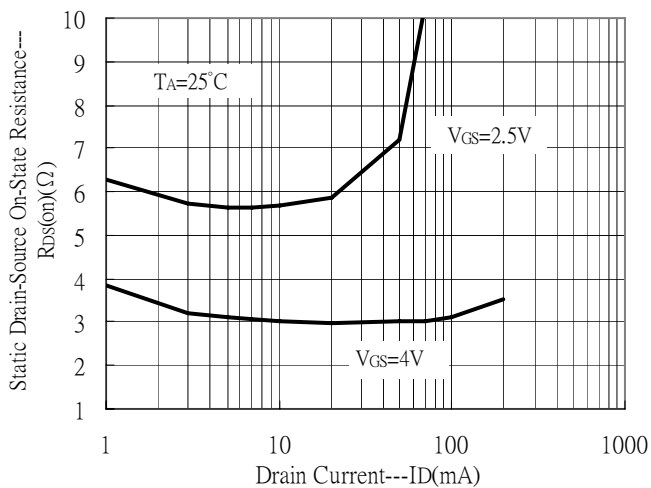
Typical Transfer Characteristics



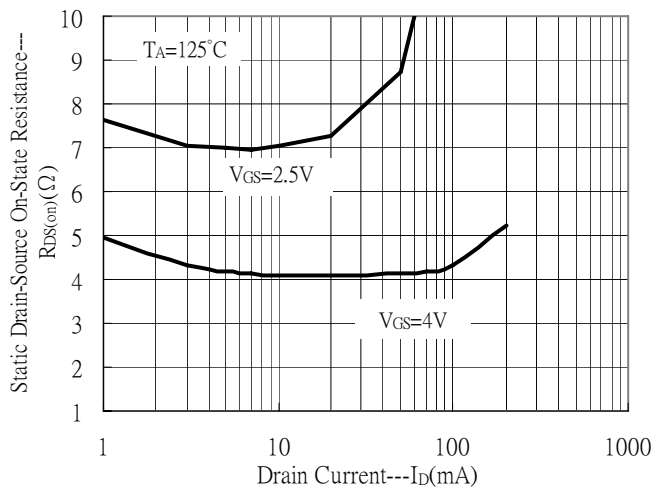
Static Drain-Source On-state Resistance with Temperature



Static Drain-Source On-State resistance vs Drain Current

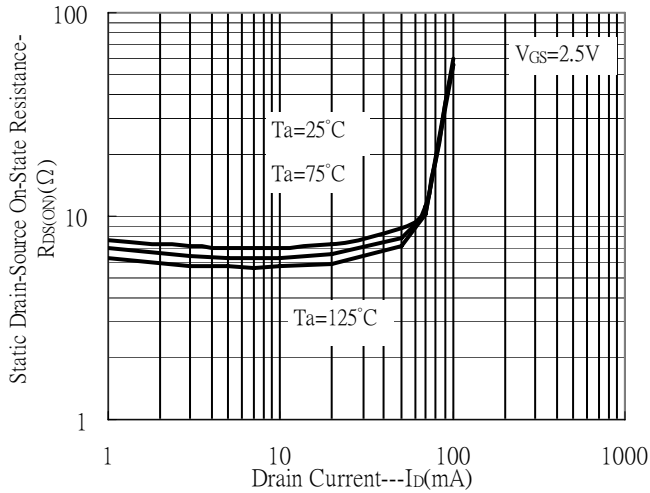


Static Drain-Source On-State resistance vs Drain Current

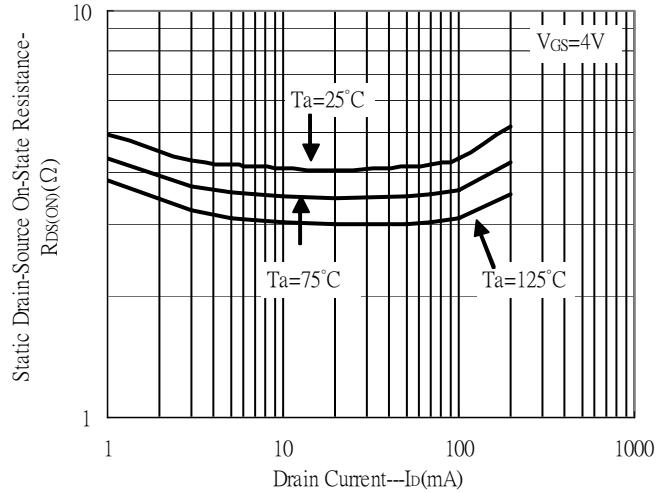


Typical Characteristics(Cont.)

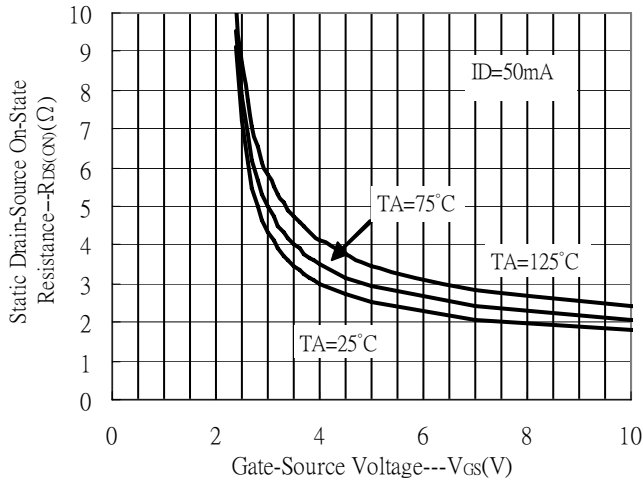
Static Drain-Source On-State Resistance vs Drain Current



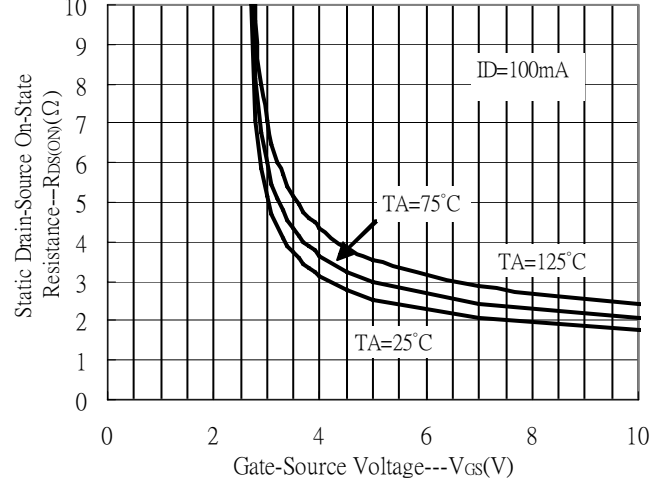
Static Drain-Source On-State Resistance vs Drain Current



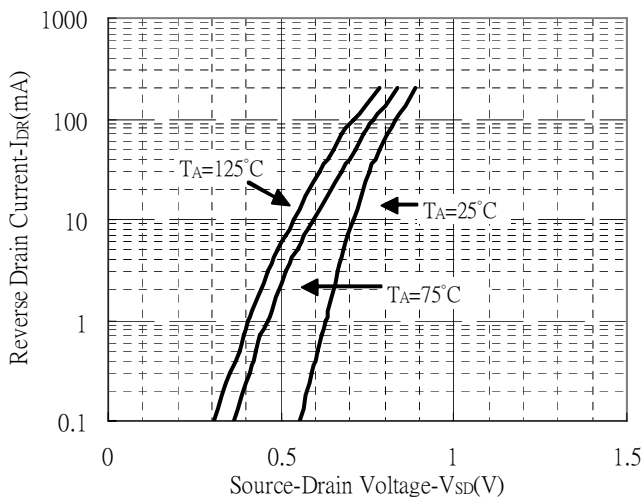
Static Drain-Source On-State Resistance vs Gate-Source Voltage



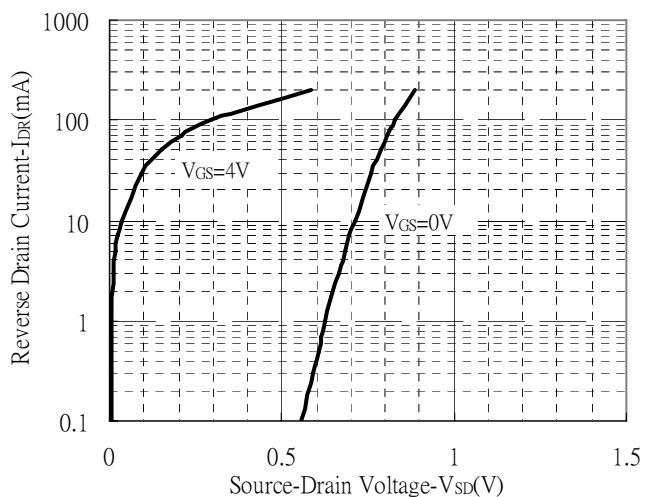
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Reverse Drain Current vs Source-Drain Voltage(I)

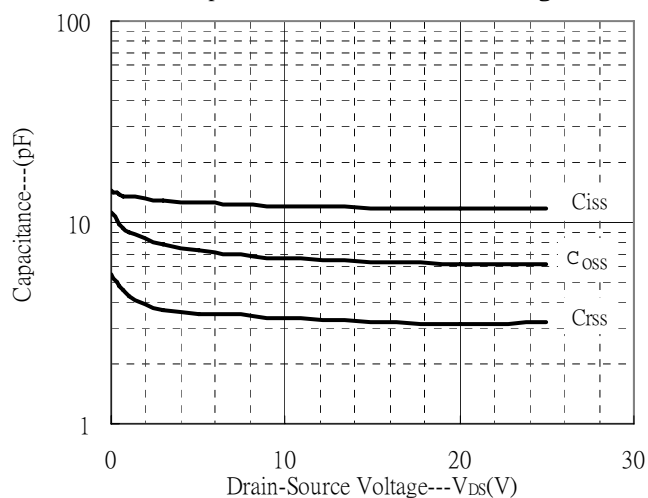


Reverse Drain Current vs Source-Drain Voltage(II)

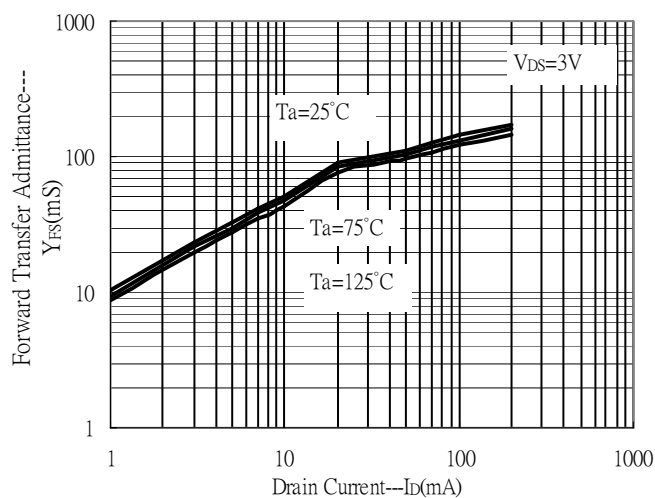


Typical Characteristics(Cont.)

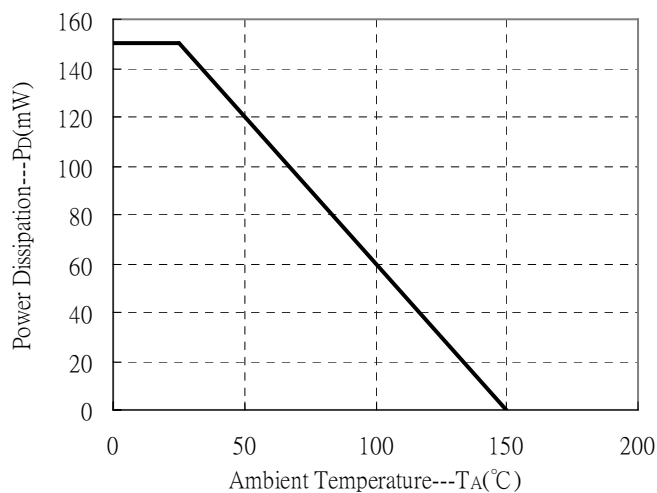
Capacitance vs Drain-to-Source Voltage



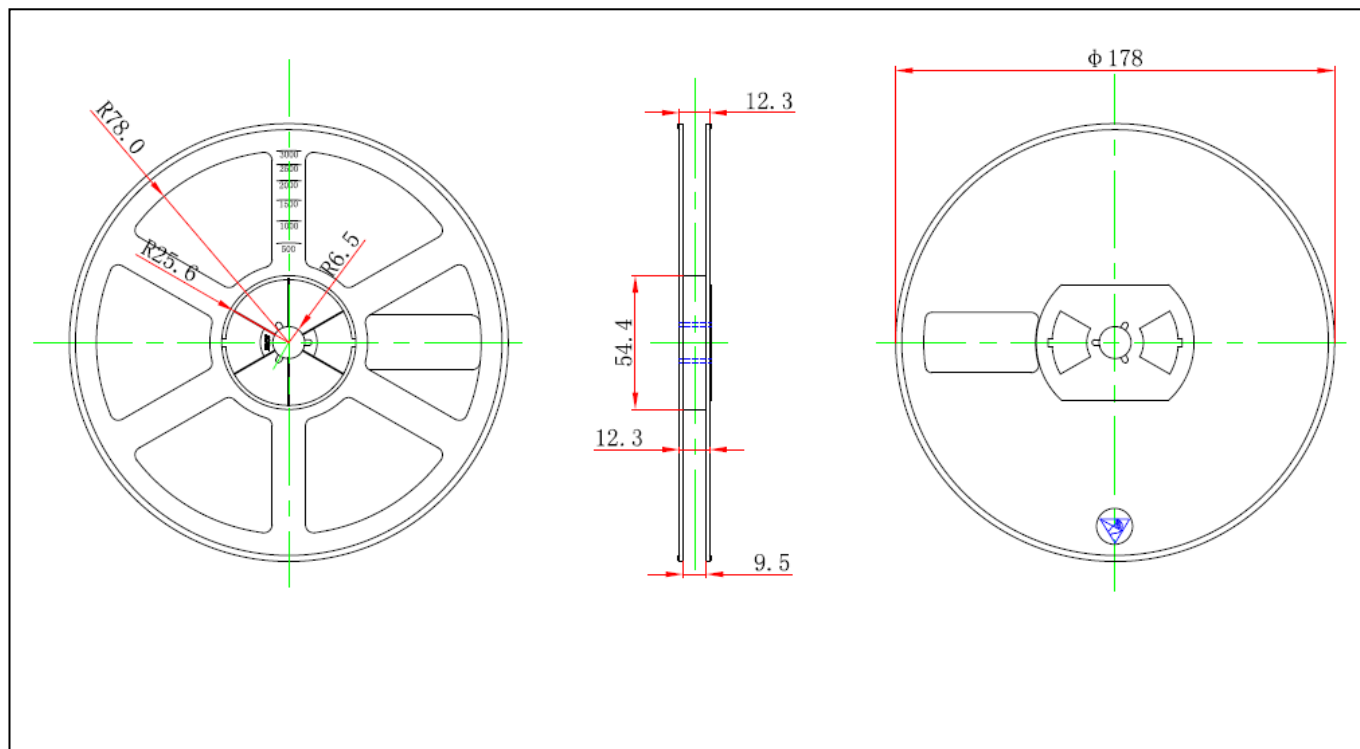
Forward Transfer Admittance vs Drain Current



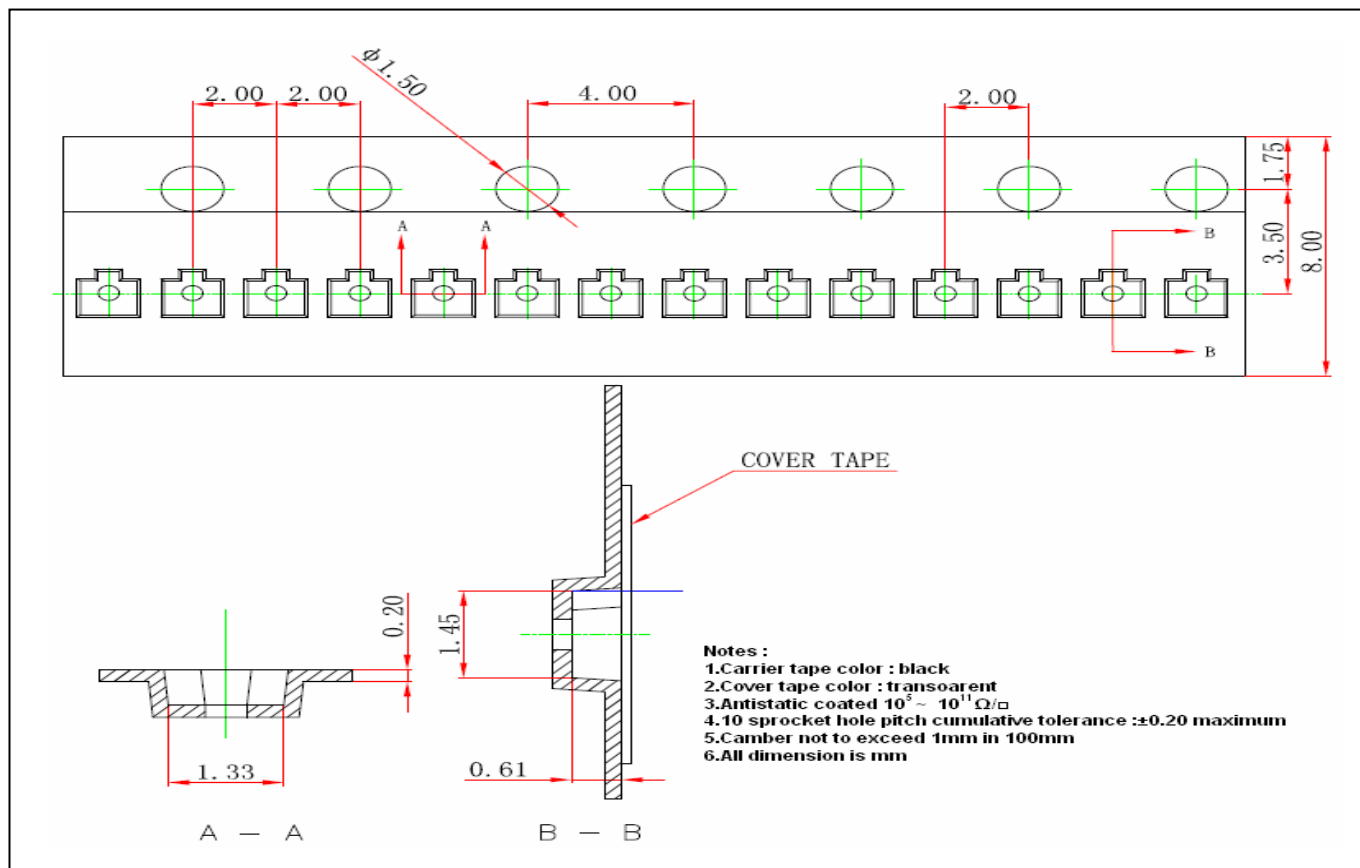
Power Derating Curve



Reel Dimension



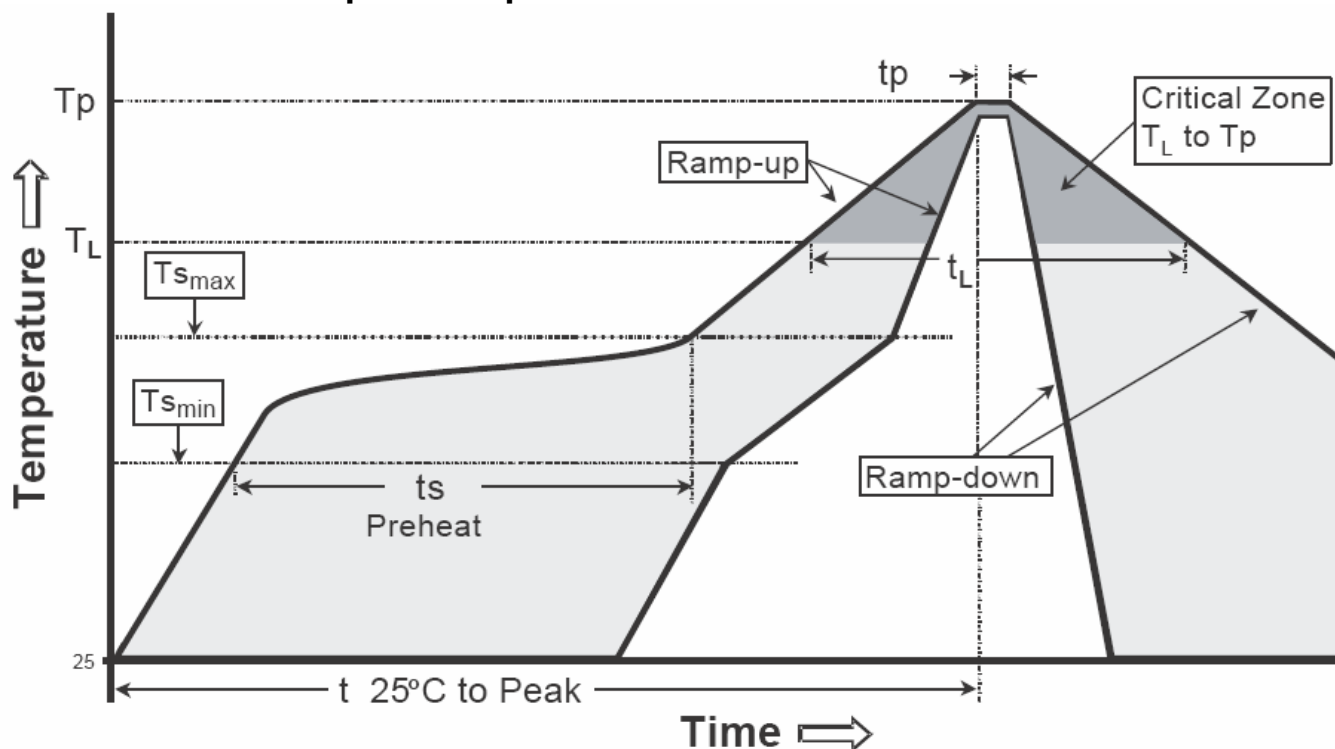
Carrier Tape Dimension



Recommended wave soldering condition

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

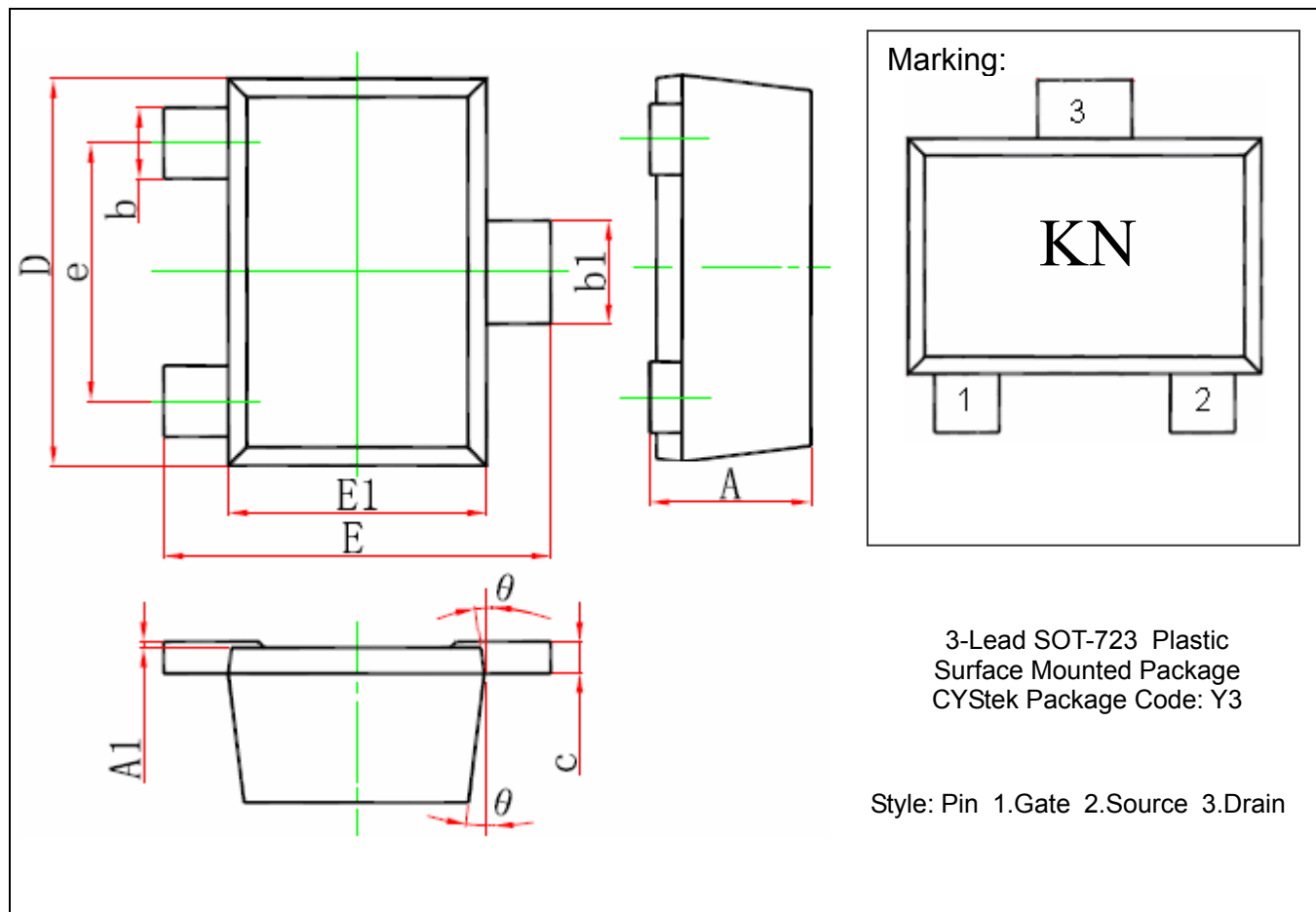
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T_{smax} to T_p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T_{smin})	100°C	150°C
-Temperature Max(T_{smax})	150°C	200°C
-Time(t_{smin} to t_{smax})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T_L)	183°C	217°C
- Time (t_L)	60-150 seconds	60-150 seconds
Peak Temperature(T_p)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(t_p)	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-723 Dimension



*Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.000	0.500	0.000	0.020	D	1.150	1.250	0.045	0.049
A1	0.000	0.050	0.000	0.002	E	1.150	1.250	0.045	0.049
b	0.170	0.270	0.007	0.011	E1	0.750	0.850	0.030	0.033
b1	0.270	0.370	0.011	0.015	e	0.800*		0.031*	
c	0.000	0.150	0.000	0.006	θ	7° REF		7° REF	

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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