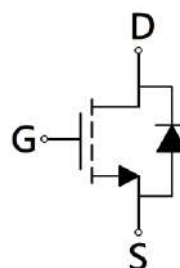
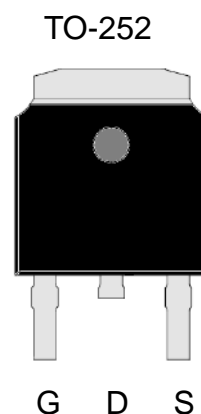


## N -Channel Enhancement Mode Power MOSFET

### Features:

- Low Gate Charge
- Simple Drive Requirement
- Pb-free lead plating package



G : Gate S : Source D : Drain

BV <sub>DSS</sub>		250V
I <sub>D</sub> @V <sub>GS</sub> =10V, T <sub>C</sub> =25°C		18A
R <sub>DS(on)</sub> (TYP)	V <sub>GS</sub> =10V, I <sub>D</sub> =9A	132mΩ
	V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A	138mΩ

### Ordering Information

Device	Package	Shipping
KJB160N25	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

## Absolute Maximum Ratings (T<sub>c</sub>=25°C, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V <sub>DS</sub>	250	V
Gate-Source Voltage	V <sub>GS</sub>	±20	
Continuous Drain Current @ T <sub>c</sub> =25°C, V <sub>GS</sub> =10V	I <sub>D</sub>	18	A
Continuous Drain Current @ T <sub>c</sub> =100°C, V <sub>GS</sub> =10V		12.7	
Pulsed Drain Current *1	I <sub>DM</sub>	44	
Avalanche Current	I <sub>AS</sub>	10	
Avalanche Energy @ L=6mH	E <sub>AS</sub>	192	mJ
Total Power Dissipation @ T <sub>c</sub> =25°C	PD	83	W
Total Power Dissipation @ T <sub>c</sub> =100°C		41.5	
Operating Junction and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55~+175	°C

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

\*2. Duty cycle ≤ 1%

## Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case	R <sub>θJC</sub>	1.8	°C/W
Thermal Resistance, Junction-to-ambient	R <sub>θJA</sub>	62.5	

## Electrical Characteristics (T<sub>c</sub>=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>					
BV <sub>DSS</sub>	250	-	-	V	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA
V <sub>GS(th)</sub>	1	-	2.5	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA
I <sub>GS</sub>	-	-	±100	nA	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V
I <sub>DSS</sub>	-	-	1	μA	V <sub>DS</sub> =200V, V <sub>GS</sub> =0V
R <sub>DS(ON)</sub> *1	-	132	175	mΩ	V <sub>GS</sub> =10V, I <sub>D</sub> =9A
	-	138	195		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A
G <sub>FS</sub> *1	-	22	-	S	V <sub>DS</sub> =10V, I <sub>D</sub> =9A
<b>Dynamic</b>					
Q <sub>g</sub> *1, 2	-	44.3	-	nC	V <sub>DS</sub> =200V, I <sub>D</sub> =9A, V <sub>GS</sub> =10V
Q <sub>gs</sub> *1, 2	-	6.3	-		
Q <sub>gd</sub> *1, 2	-	15	-		
t <sub>d(ON)</sub> *1, 2	-	16	-	ns	V <sub>DS</sub> =125V, I <sub>D</sub> =9A, V <sub>GS</sub> =10V, R <sub>G</sub> =25Ω
t <sub>r</sub> *1, 2	-	55	-		
t <sub>d(OFF)</sub> *1, 2	-	141	-		
t <sub>f</sub> *1, 2	-	125	-		
C <sub>iss</sub>	-	2170	-	pF	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz
C <sub>oss</sub>	-	121	-		
C <sub>rss</sub>	-	73	-		
R <sub>g</sub>	-	1.4	-	Ω	f=1MHz

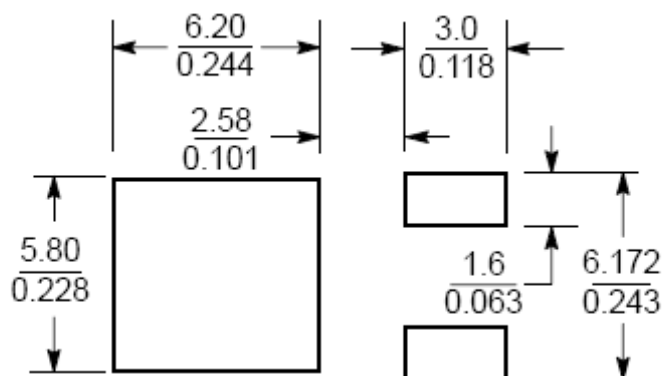
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Source-Drain Diode</b>					
$I_S$ *1	-	-	18	A	$I_F=9A, V_{GS}=0V$
$V_{SD}$ *1	-	0.8	1.2	V	
trr	-	117	-	ns	$I_F=9A, dI_F/dt=100A/\mu s$
Qrr	-	480	-	nC	

Note : \*1.Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$

\*2.Independent of operating temperature

\*3.Pulse width limited by maximum junction temperature.

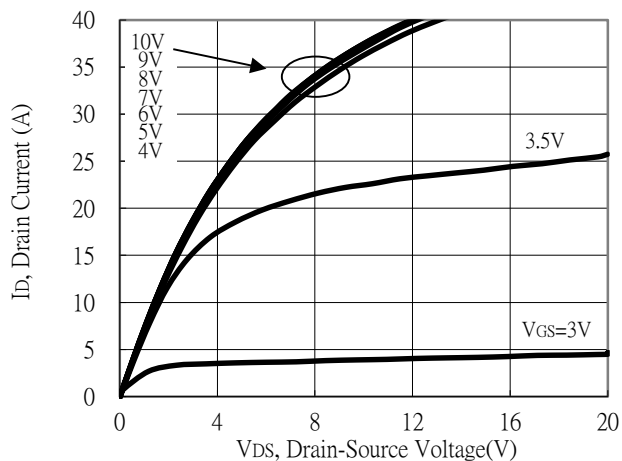
## Recommended soldering footprint



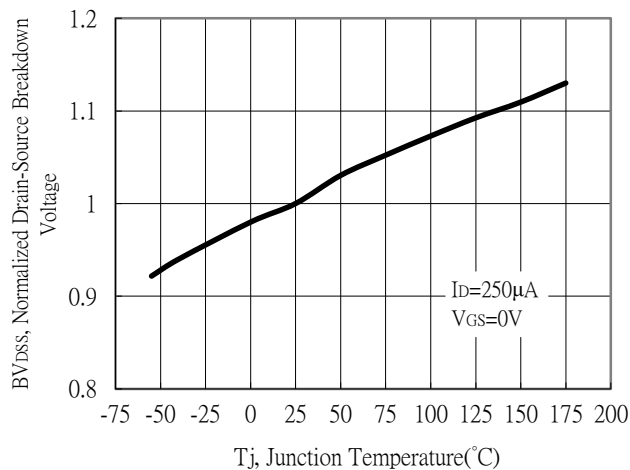
Unit (  $\frac{mm}{inch}$  )

## Typical Characteristics

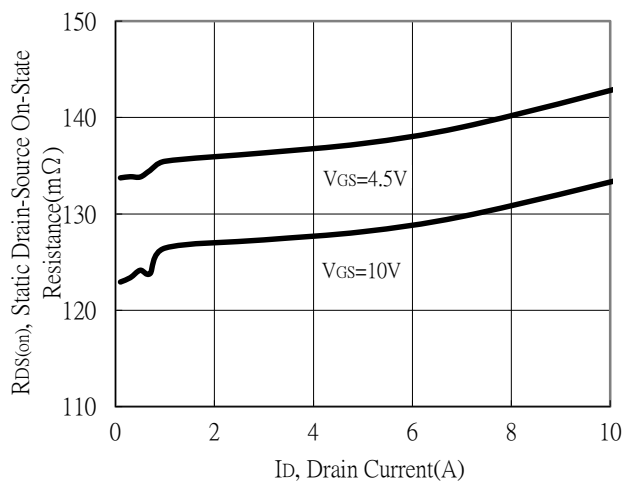
Typical Output Characteristics



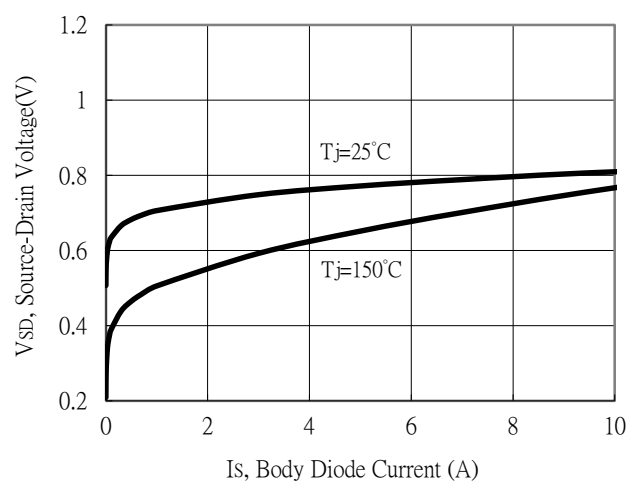
Breakdown Voltage vs Ambient Temperature



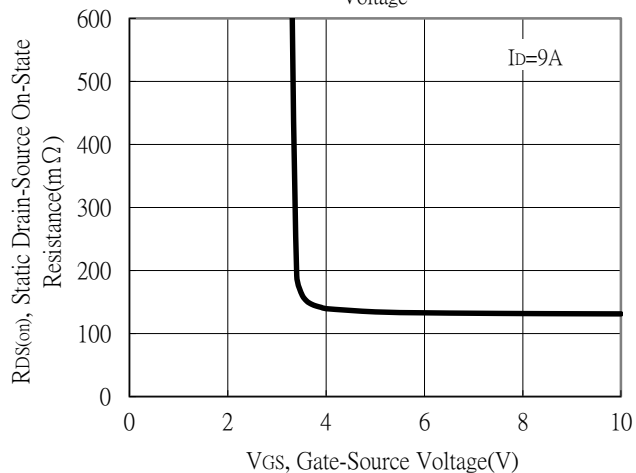
Static Drain-Source On-State resistance vs Drain Current



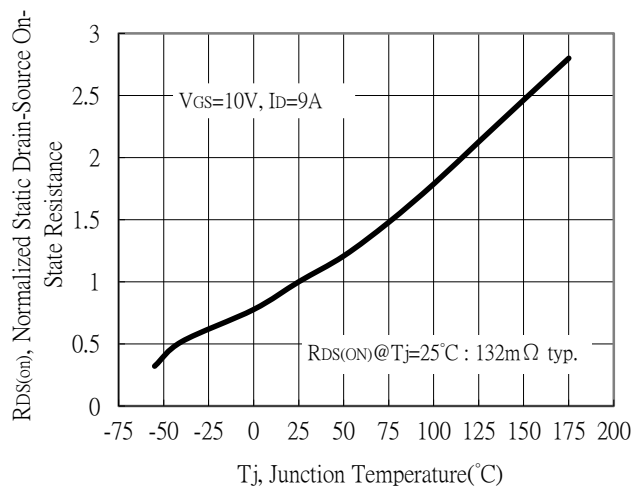
Body Diode Current vs Source-Drain Voltage



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

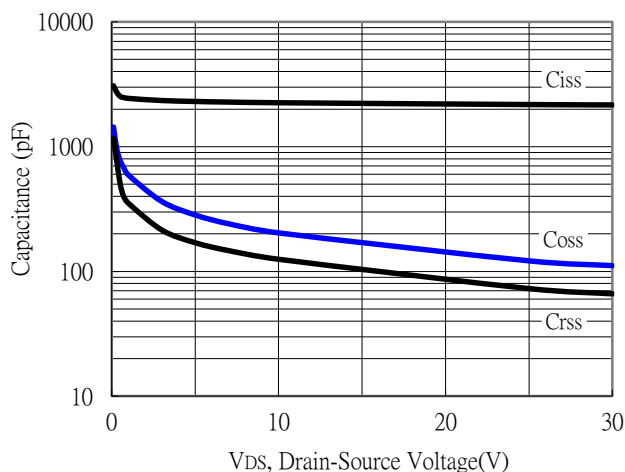


Drain-Source On-State Resistance vs Junction Temperature

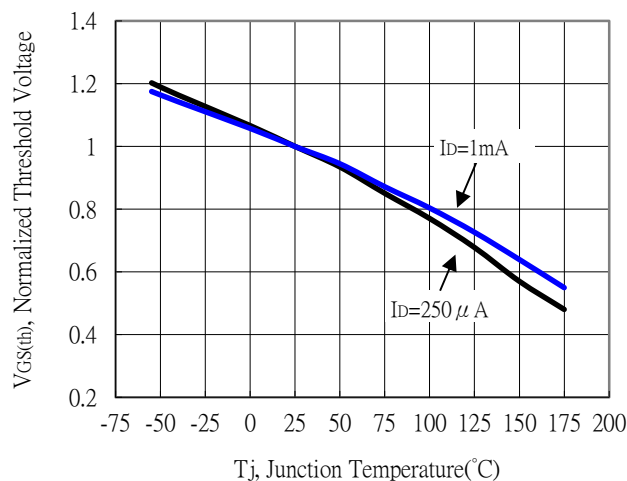


## Typical Characteristics (Cont.)

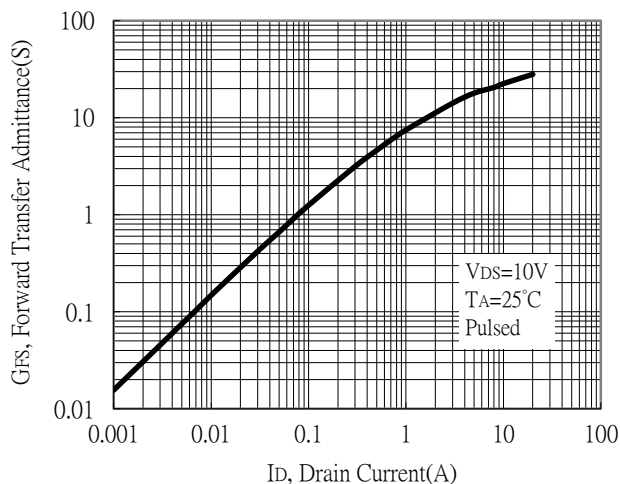
Capacitance vs Drain-to-Source Voltage



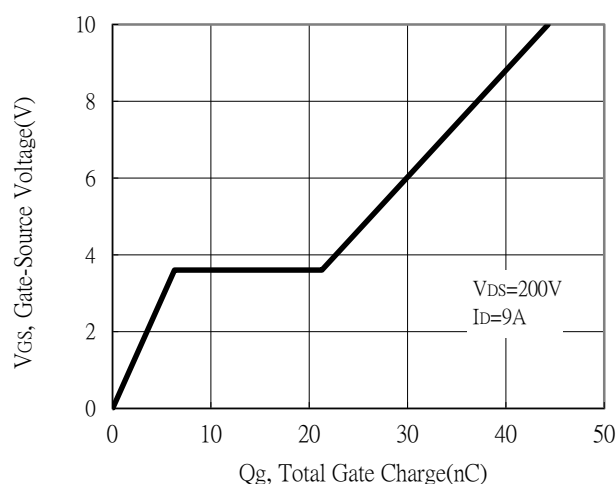
Threshold Voltage vs Junction Temperature



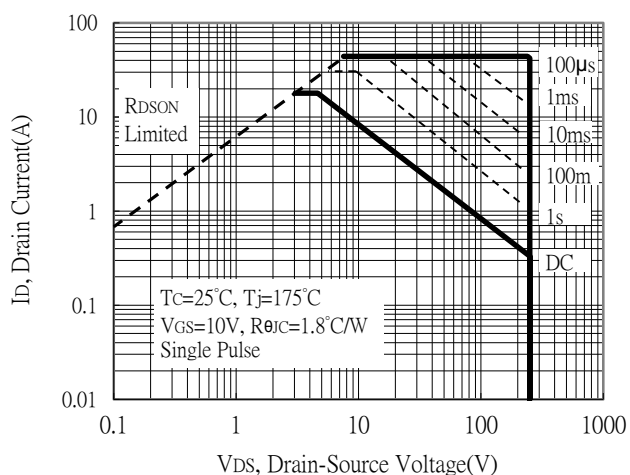
Forward Transfer Admittance vs Drain Current



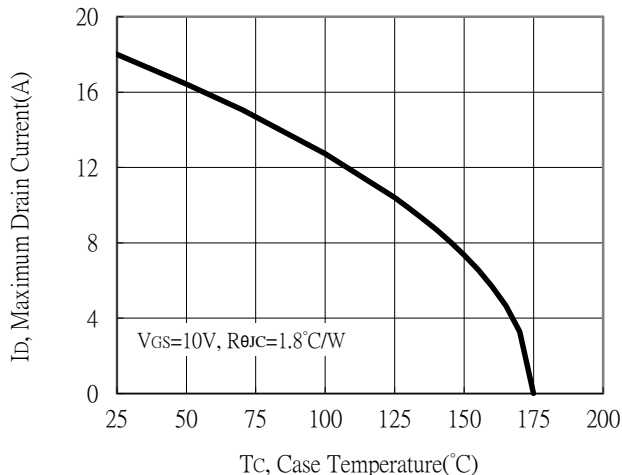
Gate Charge Characteristics



Maximum Safe Operating Area

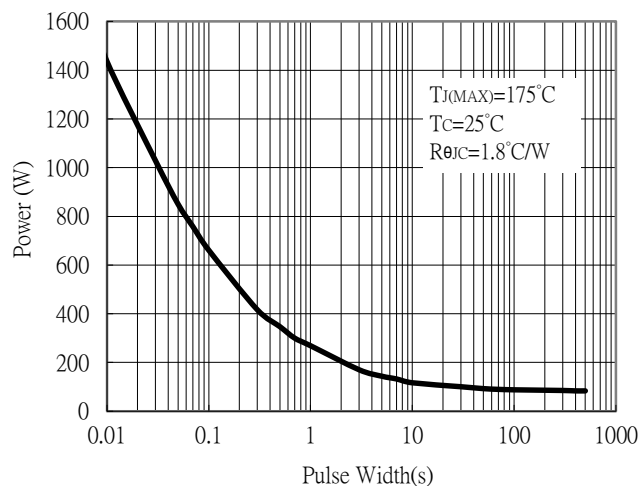


Maximum Drain Current vs Case Temperature

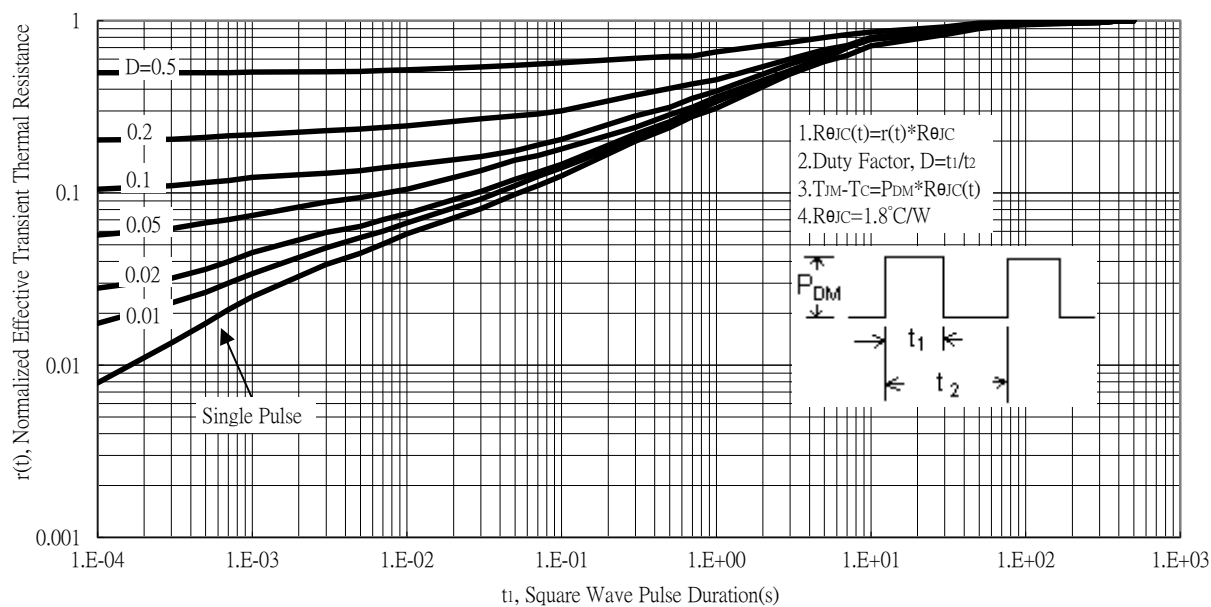


## Typical Characteristics (Cont.)

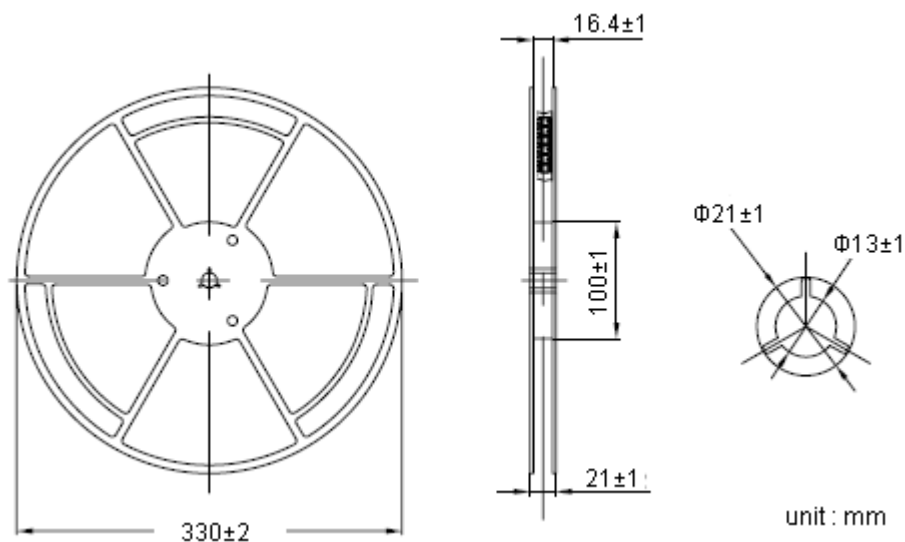
Single Pulse Power Rating, Junction to Case



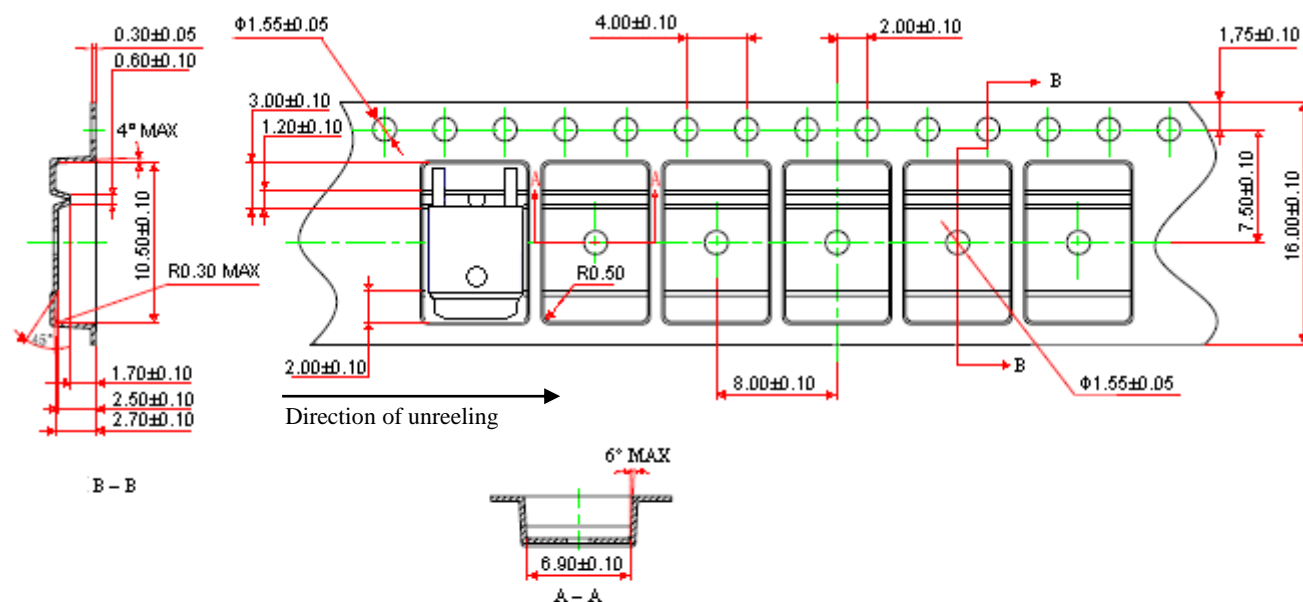
Transient Thermal Response Curves



## Reel Dimension



## Carrier Tape Dimension

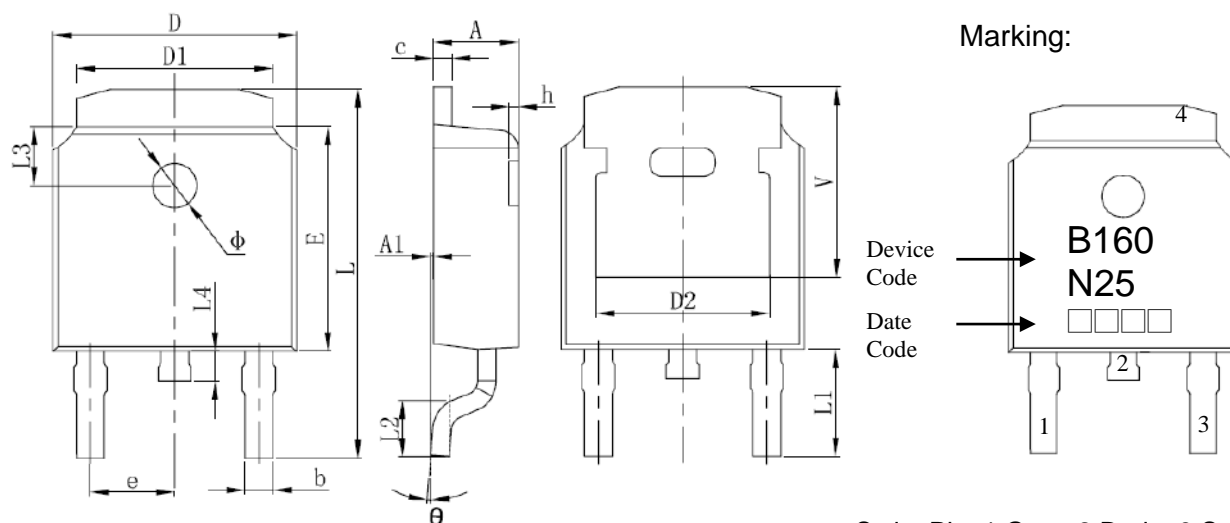


### Notes:

1. 10 sprocket hole pitch cumulative tolerance  $\pm 0.2$ .
2. Camber not to exceed 1mm in 100mm.
3. Material: conductive black polystyrene, antistatic coated :  $10^5 \Omega/\square \sim 10^{11} \Omega/\square$

unit : mm

## TO-252 Dimension



3-Lead TO-252 Plastic Surface Mount Package

Date Code(counting from left to right) :  
 1<sup>st</sup> code: year code, the last digit of Christian year  
 2<sup>nd</sup> code : month code, Jan→A, Feb→B, Mar→C, Apr→D  
 May→E, Jun→F, Jul→G, Aug→H, Sep→J,  
 Oct→K, Nov→L, Dec→M  
 3<sup>rd</sup> and 4<sup>th</sup> codes : production serial number, 01~99

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	L	0.382	0.406	9.712	10.312
A1	0.000	0.005	0.000	0.127	L1	0.114	REF	2.900	REF
b	0.025	0.030	0.635	0.770	L2	0.055	0.067	1.400	1.700
c	0.018	0.023	0.460	0.580	L3	0.063	REF	1.600	REF
D	0.256	0.264	6.500	6.700	L4	0.024	0.039	0.600	1.000
D1	0.201	0.215	5.100	5.460	Φ	0.043	0.051	1.100	1.300
D2	0.190	REF	4.830	REF	θ	0°	8°	0°	8°
E	0.236	0.244	6.000	6.200	h	0.000	0.012	0.000	0.300
e	0.086	0.094	2.186	2.386	V	0.207	REF	5.250	REF