P-Channel Enhancement Mode Power MOSFET

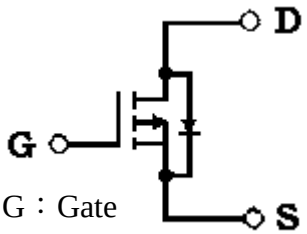
Features:

- Single Drive Requirement
- Low On-resistance
- Fast switching Characteristic
- Pb-free lead plating and halogen-free package

TO-252(DPAK)

G D S

KJB15P04



G：Gate
D：Drain
S：Source

BV_{DSS}	**-40V**
I_D	**-50A**
$R_{DS(ON)}$@V_{GS}=-10V, I_D=-25A	**9.7mΩ (typ)**
$R_{DS(ON)}$@V_{GS}=-4.5V, I_D=-15A	**12.7mΩ (typ)**

Ordering Information

Device	Package	Shipping
KJB15P04	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current @V_{GS}=-10V, T_C=25°C (Package limited)		I_D	-50	A
Continuous Drain Current @V_{GS}=-10V, T_C=25°C (Silicon limited)			-59	
Continuous Drain Current @V_{GS}=-10V, T_C=100°C			-37	
Continuous Drain Current @V_{GS}=-10V, T_A=25°C			-11	
Continuous Drain Current @V_{GS}=-10V, T_A=100°C			-7	
Pulsed Drain Current		I_{DM}	-100 *1	
Power Dissipation	T_C=25℃	P_D	69 *4	W
	T_C=100℃		28 *4	
	T_A=25℃		2.5	
	T_A=100℃		1.0	
Single Pulse Avalanche Energy		E_{AS}	200 *2	mJ
Single Pulse Avalanche Current		I_{AS}	-20	A
Operating Junction and Storage Temperature		Tj, Tstg	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	1.8	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	50 *3	°C/W

Note : *1. Pulse width limited by safe operating area.

*2 . Tj=25°C, V_{DD}=-15V, L=1mH, R_G=25Ω .

*3 . The value of Rth,j-a is measured with the device mounted on 1 in² FR-4 board with 2 oz. copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

*4 . The power dissipation P_D is more useful in setting the upper dissipation limit for cases where additional heatsinking is used. It is used to determined the current rating, when this rating falls below the package limit.

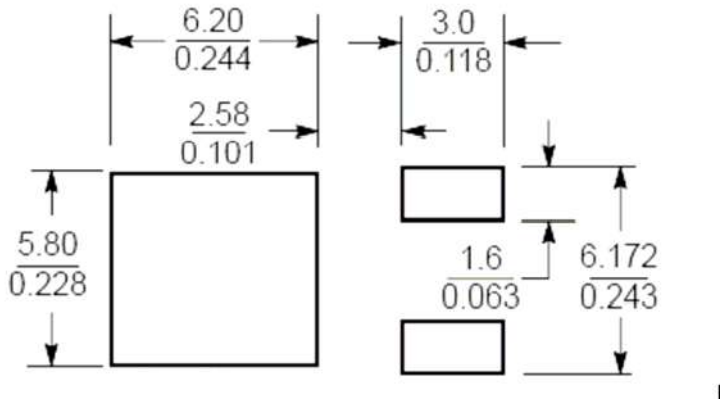
Characteristics (Tj=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	-40	-	-	V	V_{GS}=0V, I_D=-250μA
$V_{GS(th)}$	-1.0	-1.2	-2.5	V	V_{DS} = V_{GS}, I_D=-250μA
G_{FS}	-	42	-	S	V_{DS} =-5V, I_D=-25A
I_{GSS}	-	-	±100	nA	V_{GS}=±20V
I_{DSS}	-	-	-1	μA	V_{DS} =-32V, V_{GS} =0V
I_{DSS}	-	-	-25		V_{DS} =-32V, V_{GS} =0V, Tj=70°C
*$R_{DS(ON)}$	-	9.7	13	mΩ	V_{GS} =-10V, I_D=-25A
*$R_{DS(ON)}$	-	12.7	18		V_{GS} =-4.5V, I_D=-15A
Dynamic					
*Qg	-	40	-	nC	I_D=-25A, V_{DS}=-20V, V_{GS}=-10V
*Qgs	-	13	-		
*Qgd	-	16	-		

*$t_{d(ON)}$	-	24	-	ns	V_{DS}=-20V, V_{GS}=-10V, R_G=6Ω , I_D=-25A
*tr	-	15	-		
*$t_{d(OFF)}$	-	120	-		
*t_f	-	40	-		
Ciss	-	3987	-	pF	V_{GS}=0V, V_{DS}=-20V, f=1MHz
Coss	-	325	-		
Crss	-	263	-		
Source-Drain Diode					
*V_{SD}	-	-0.9	-1.2	V	I_S=-25A, V_{GS}=0V
*I_S	-	-	-50	A	
*trr	-	36	-	ns	I_F=-25A, V_{GS}=0V, dI_F/dt=100A/μs
*Qrr	-	32	-	nC	

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

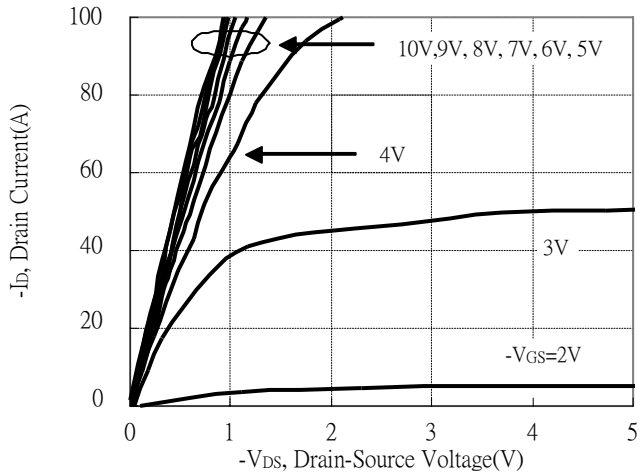
Recommended soldering footprint



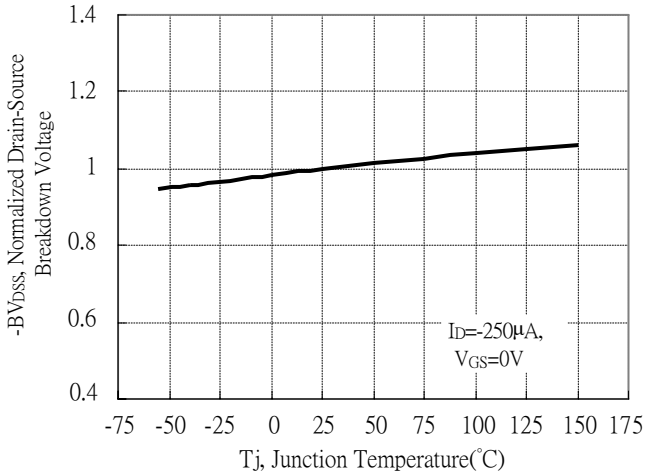
Unit (mm / inch)

Typical Characteristics

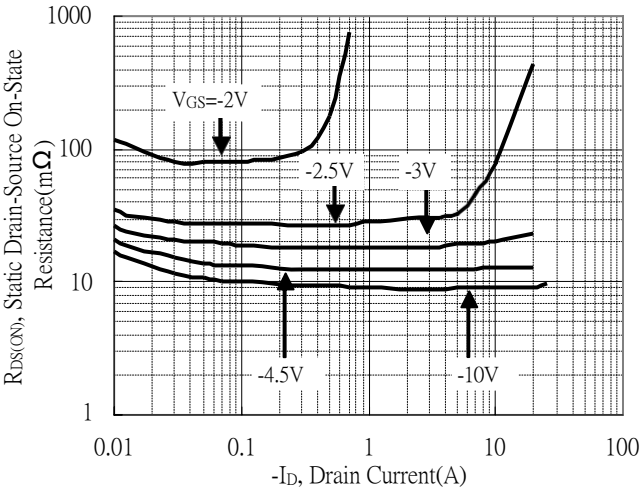
Typical Output Characteristics



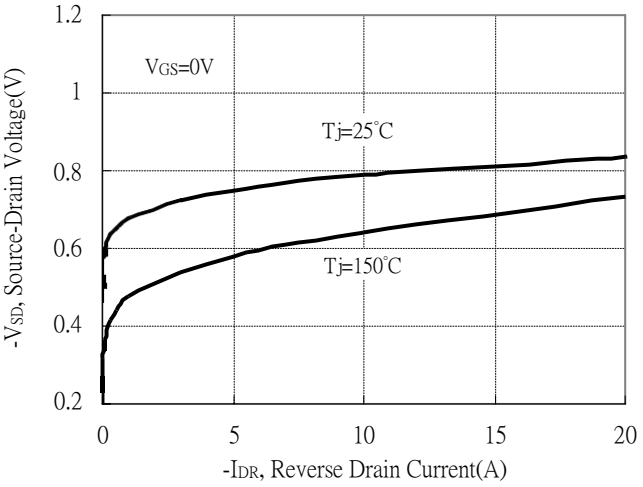
Brekdown Voltage vs Ambient Temperature



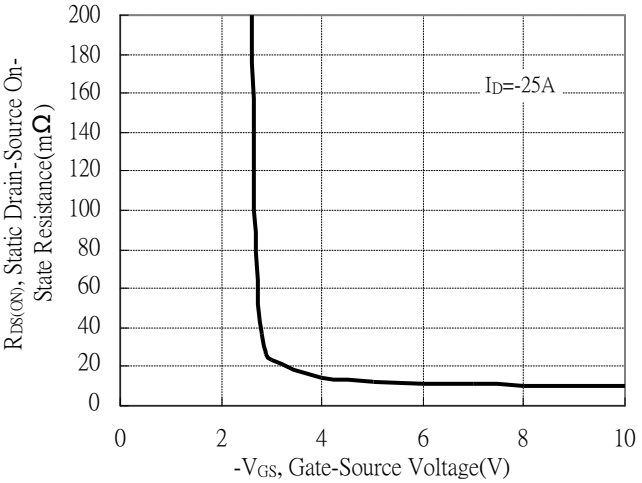
Static Drain-Source On-State resistance vs Drain Current



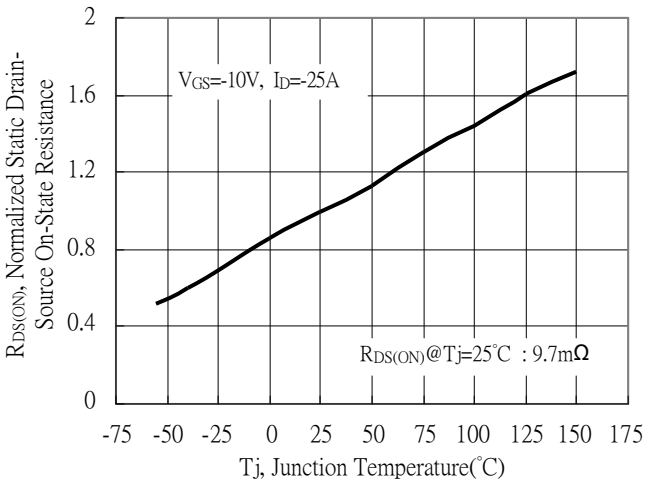
Reverse Drain Current vs Source-Drain Voltage



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

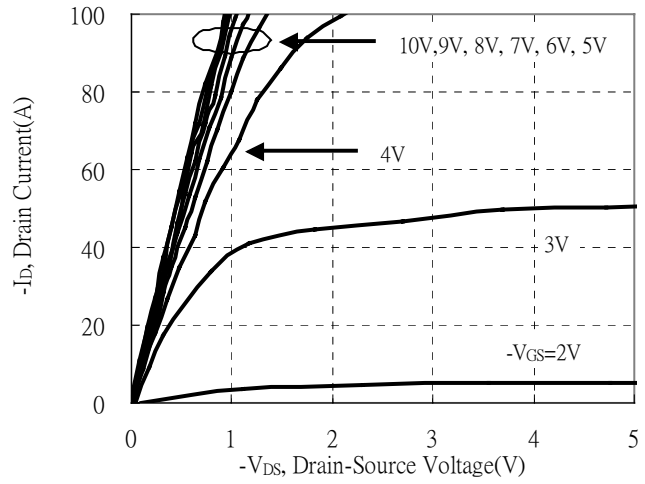


Drain-Source On-State Resistance vs Junction Tempearture

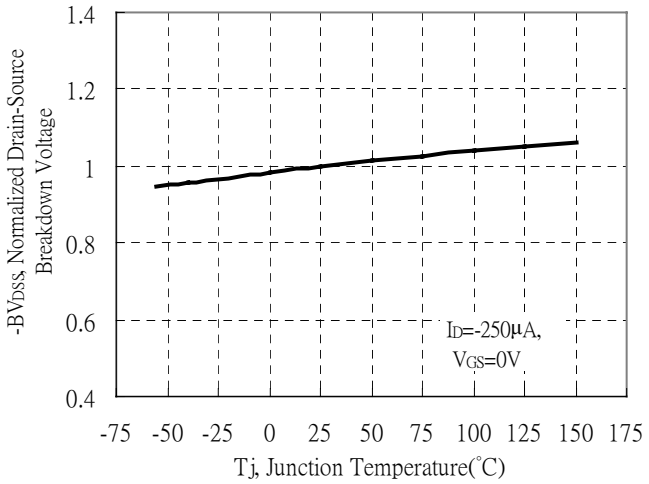


Typical Characteristics

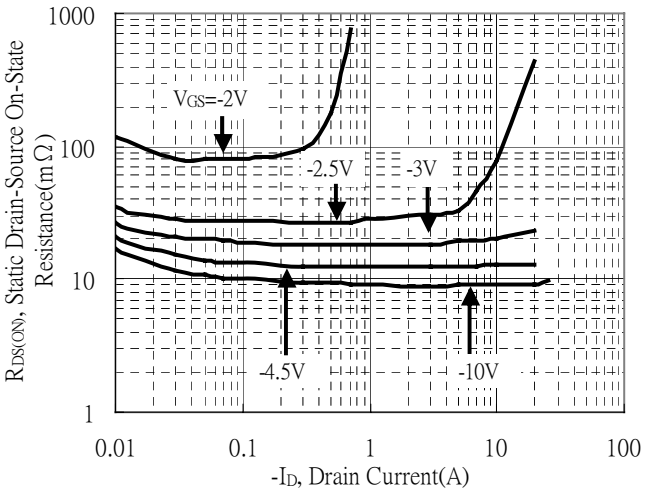
Typical Output Characteristics



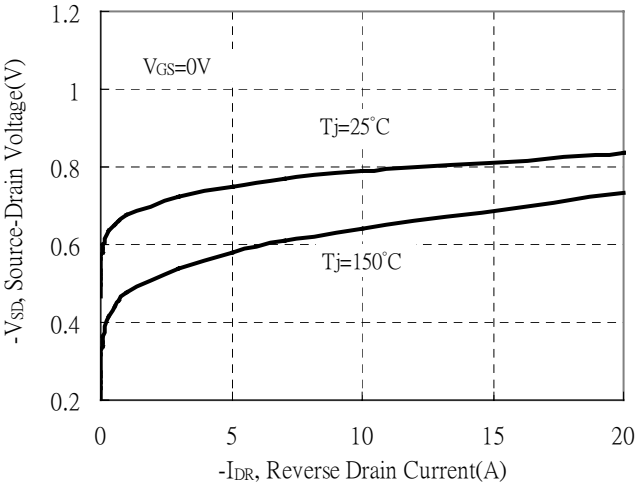
Brekdown Voltage vs Ambient Temperature



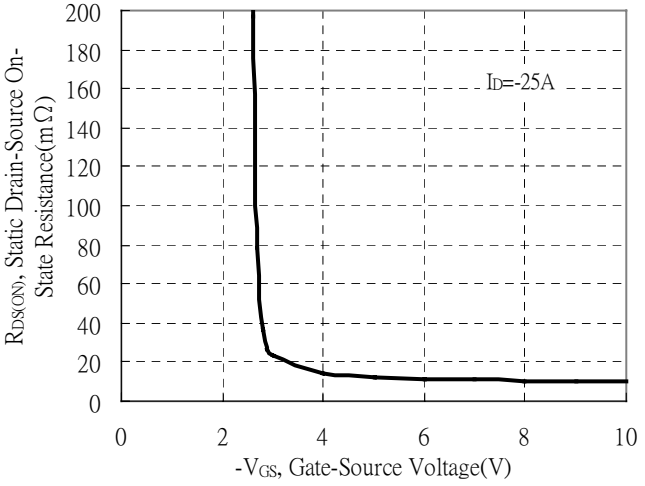
Static Drain-Source On-State resistance vs Drain Current



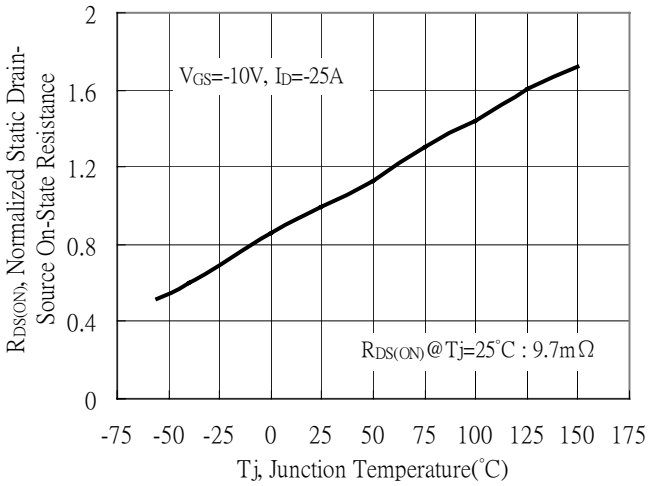
Reverse Drain Current vs Source-Drain Voltage



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

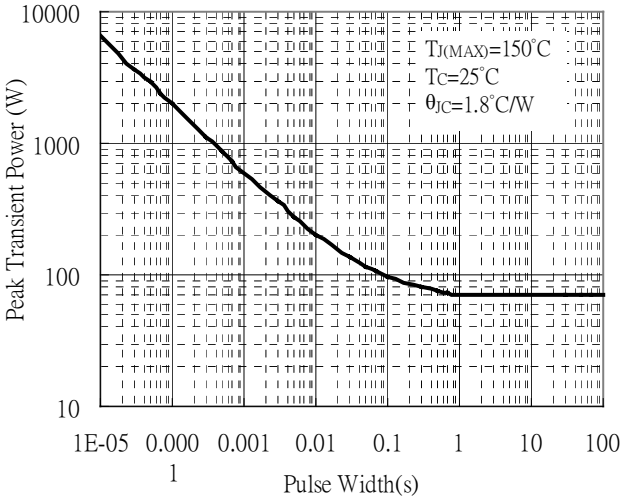


Drain-Source On-State Resistance vs Junction Tempearture

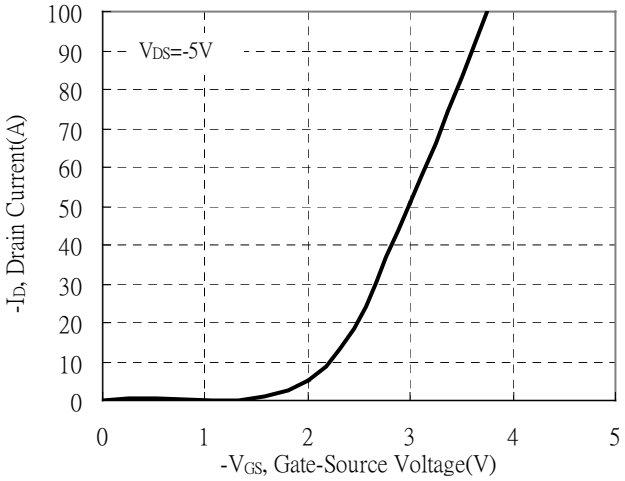


Typical Characteristics(Cont.)

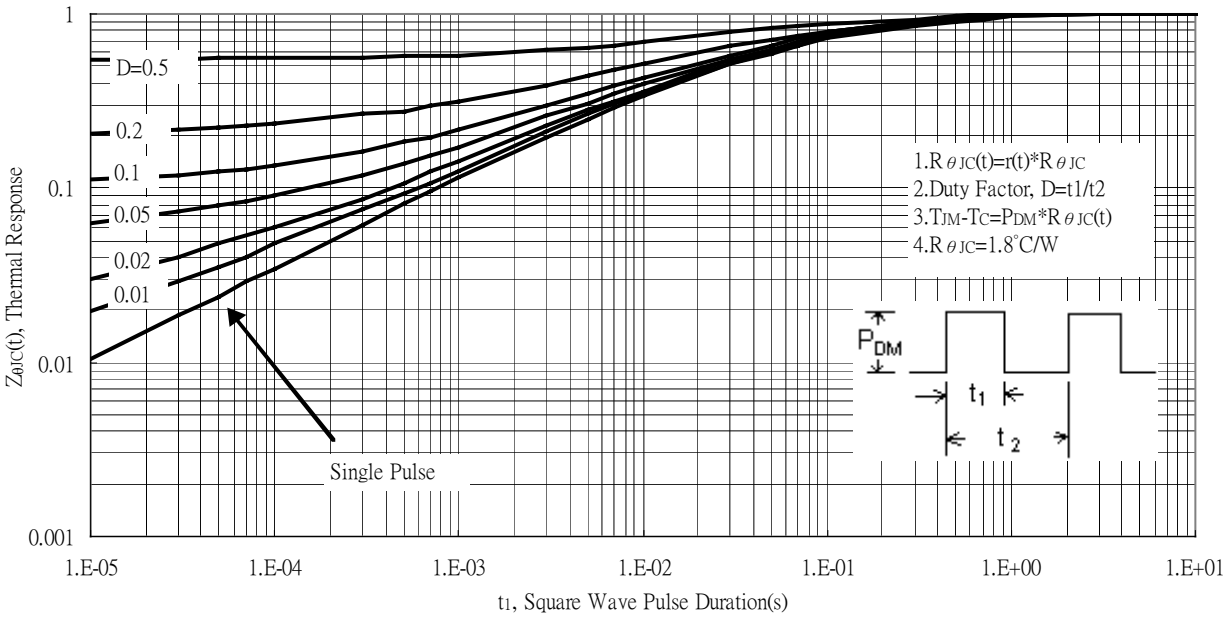
Single Pulse Maximum Power Dissipation



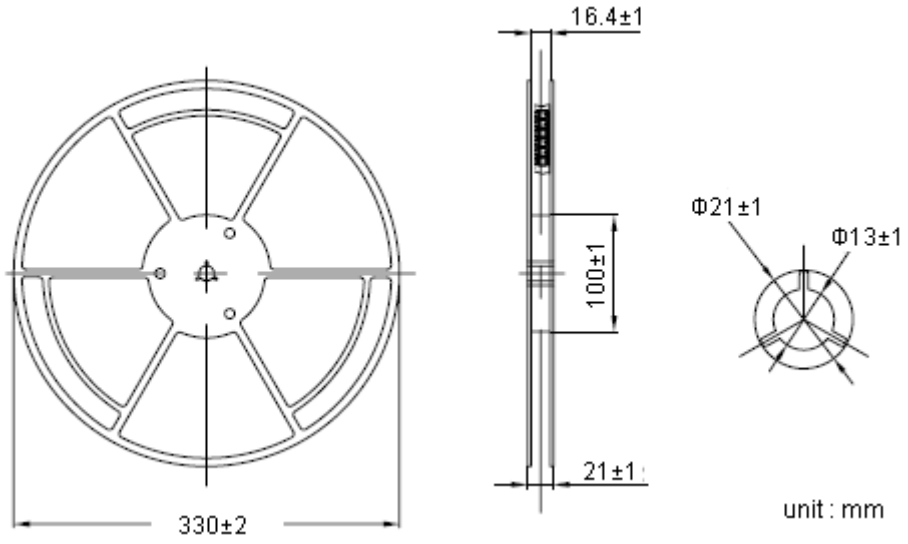
Typical Transfer Characteristics



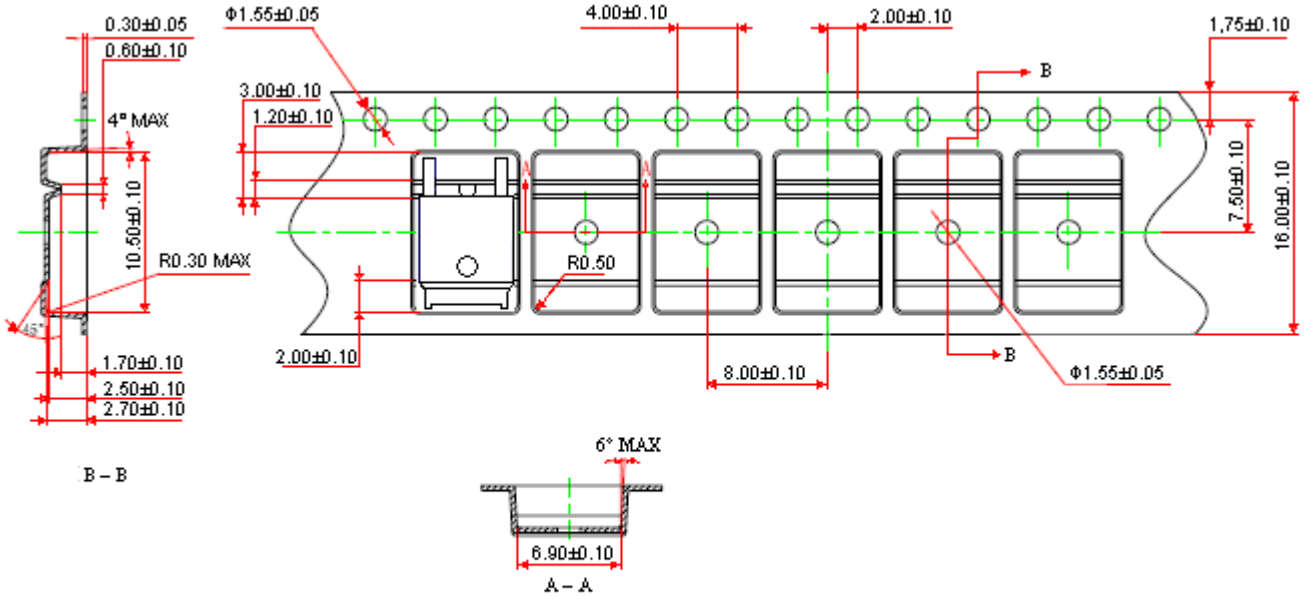
Transient Thermal Response Curves



Reel Dimension

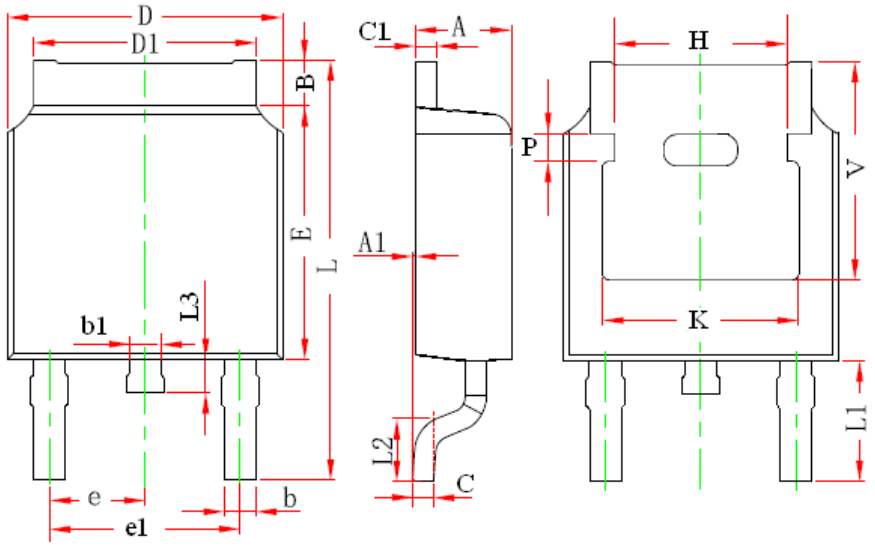


Carrier Tape Dimension

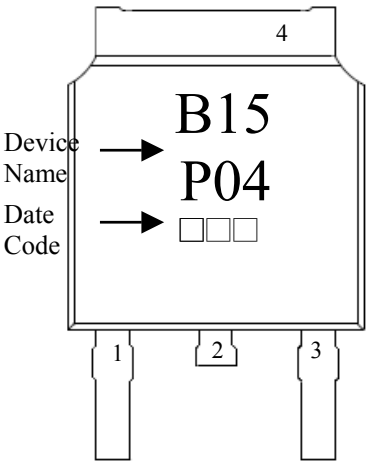


Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: conductive black polystyrene, antistatic coated : 10^{5} Ω/□~ 10^{11} Ω/□ unit : mm

TO-252 Dimension



Marking:



3-Lead TO-252 Plastic Surface Mount Package

Style: Pin 1.Gate 2.Drain 3.Source 4.Drain

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	e	0.086	0.094	2.186	2.386
A1	0.000	0.005	0.000	0.127	e1	0.172	0.188	4.372	4.772
B	0.039	0.048	0.990	1.210	H	0.163	REF	4.140	REF
b	0.026	0.034	0.660	0.860	K	0.190	REF	4.830	REF
b1	0.026	0.034	0.660	0.860	L	0.386	0.409	9.800	10.400
C	0.018	0.023	0.460	0.580	L1	0.114	REF	2.900	REF
C1	0.018	0.023	0.460	0.580	L2	0.055	0.067	1.400	1.700
D	0.256	0.264	6.500	6.700	L3	0.024	0.039	0.600	1.000
D1	0.201	0.215	5.100	5.460	P	0.026	REF	0.650	REF
E	0.236	0.244	6.000	6.200	V	0.211	REF	5.350	REF