KJE080N15

N -Channel Enhancement Mode Power MOSFET

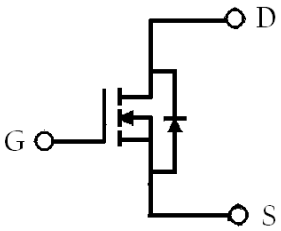
Features:

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

TO-252(DPAK)

G D S

BV_{DSS}	**150V**
I_D @V_{GS}=10V, T_C=25°C	**17A**
$R_{DS(ON)}$@V_{GS}=10V, I_D=10A	**83mΩ(typ)**



G：Gate D：Drain S：Source

Ordering Information

Device	Package	Shipping
KJE080N15	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (Tc=25°C, unless otherwise noted)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current @ T_C=25°C, V_{GS}=10V		I_D	17	A
Continuous Drain Current @ T_C=100°C, V_{GS}=10V			12	
Continuous Drain Current @ T_A=25°C, V_{GS}=10V	*2	I_{DSM}	3.2	
Continuous Drain Current @ T_A=100°C, V_{GS}=10V	*2		2.0	
Continuous Drain Current @ T_A=25°C, V_{GS}=10V	*3		2.6	
Continuous Drain Current @ T_A=100°C, V_{GS}=10V	*3		1.6	
Pulsed Drain Current	*1	I_{DM}	68	
Avalanche Current @L=0.1mH		I_{AS}	8	
Avalanche Energy @ L=1mH, I_D=8A, R_G=25Ω	*4	E_{AS}	32	mJ
Total Power Dissipation @T_C=25℃		P_D	75	W
Total Power Dissipation @T_C=100℃			37.5	
Total Power Dissipation @T_A=25℃	*2	P_{DSM}	2.5	
Total Power Dissipation @T_A=100℃	*2		1.0	
Total Power Dissipation @T_A=25℃	*3		1.7	
Total Power Dissipation @T_A=100℃	*3		0.7	
Operating Junction and Storage Temperature Range		Tj, Tstg	-55~+175	°C

Thermal Data

Parameter		Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max		$R_{th,j-c}$	2	°C/W
Thermal Resistance, Junction-to-ambient, max	*2	$R_{th,j-a}$	50	
Thermal Resistance, Junction-to-ambient, max	*3		75	

Note : *1. Pulse width limited by maximum junction temperature
*2. When the device is mounted on 1 in² FR-4 board with 2 oz. copper.
*3. When the device is on the minimum pad size recommended.
*4. 100% tested by conditions of L=0.1mH, I_{AS}=3A, V_{GS}=10V, V_{DD}=50V.
*5. The power dissipation P_D is based on $T_{J(MAX)}$=175°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
*6. The power dissipation PDSM is based on RθJA and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design, and the maximum temperature of 175°C may be used if the PCB allows it.

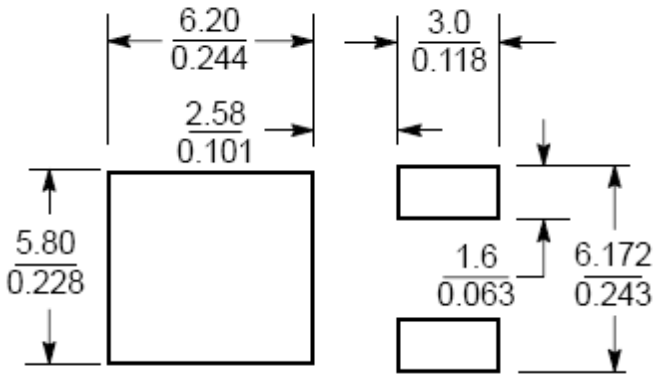
Characteristics (Tc=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	150	-	-	V	V_{GS}=0V, I_D=250μA
$\Delta BV_{DSS}/\Delta Tj$	-	0.15	-	V/°C	Reference to 25°C, I_D=250μA
$V_{GS(th)}$	2	-	4	V	V_{DS} =V_{GS}, I_D=250μA
G_{FS} *1	-	11.4	-	S	V_{DS} =10V, I_D=10A
I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V

I_{DSS}	-	-	1	μA	V_{DS} =120V, V_{GS} =0V
	-	-	25		V_{DS} =120V, V_{GS} =0V, Tj=125°C
$R_{DS(ON)}$ *1	-	83	108	mΩ	V_{GS} =10V, I_D=10A
Dynamic					
Qg *1, 2	-	17	-	nC	I_D=14A, V_{DS}=120V, V_{GS}=10V
Qgs *1, 2	-	3.3	-		
Qgd *1, 2	-	6.3	-		
$t_{d(ON)}$ *1, 2	-	10.8	-	ns	V_{DS}=75V, I_D=14A, V_{GS}=10V, R_G=10Ω
tr *1, 2	-	25.8	-		
$t_{d(OFF)}$ *1, 2	-	32.2	-		
t_f *1, 2	-	46.8	-		
Ciss	-	721	-	pF	V_{GS}=0V, V_{DS}=25V, f=1MHz
Coss	-	100	-		
Crss	-	45	-		
Rg	-	4.8	-	Ω	f=1MHz
Source-Drain Diode					
I_S *1	-	-	18	A	
I_{SM} *3	-	-	72		
V_{SD} *1	-	0.83	1.2	V	I_S=10A, V_{GS}=0V
trr	-	47.2	-	ns	I_F=14A, dI_F/dt=100A/μs
Qrr	-	97.6	-	nC	

Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%
*2.Independent of operating temperature
*3.Pulse width limited by maximum junction temperature.

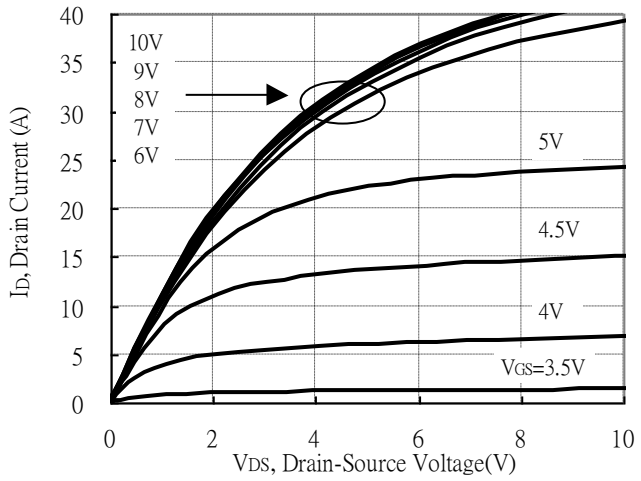
Recommended soldering footprint



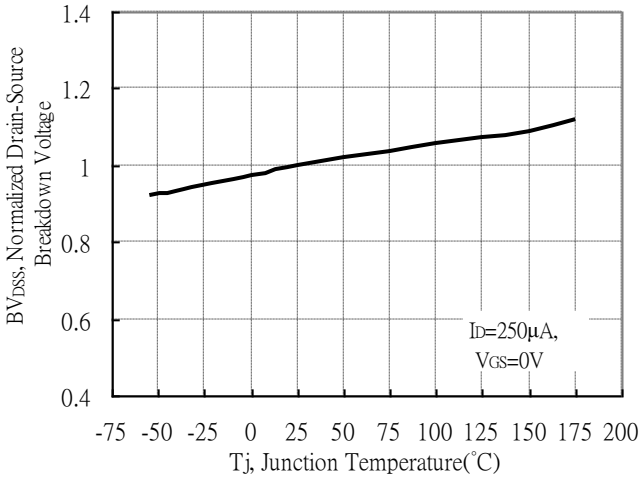
Unit (mm / inch)

Typical Characteristics

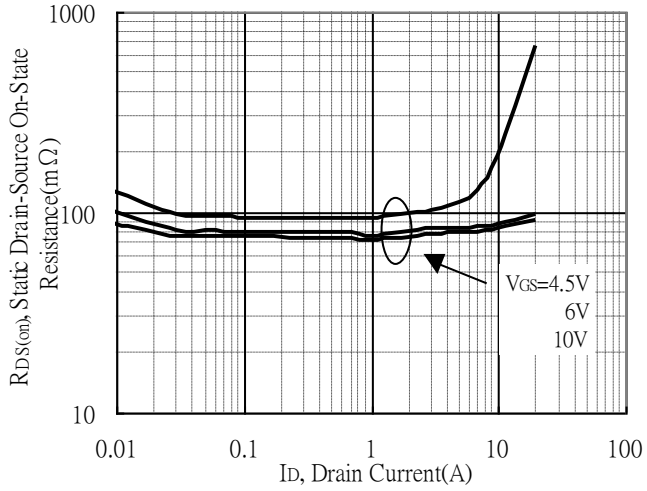
Typical Output Characteristics



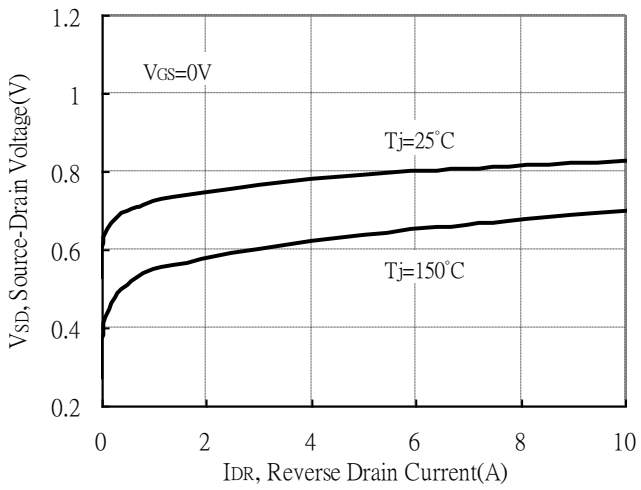
Brekdown Voltage vs Ambient Temperature



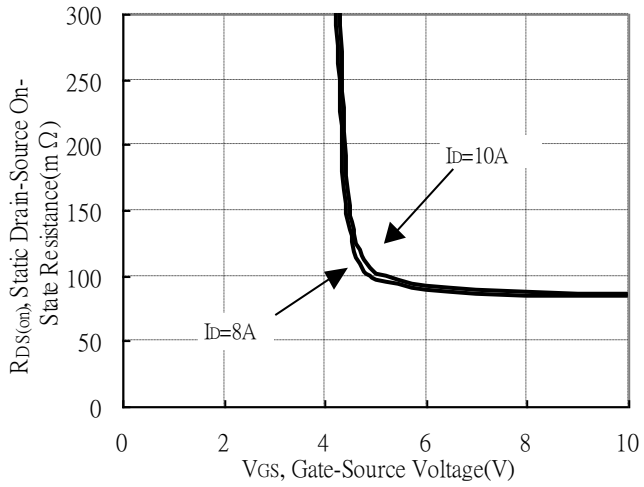
Static Drain-Source On-State resistance vs Drain Current



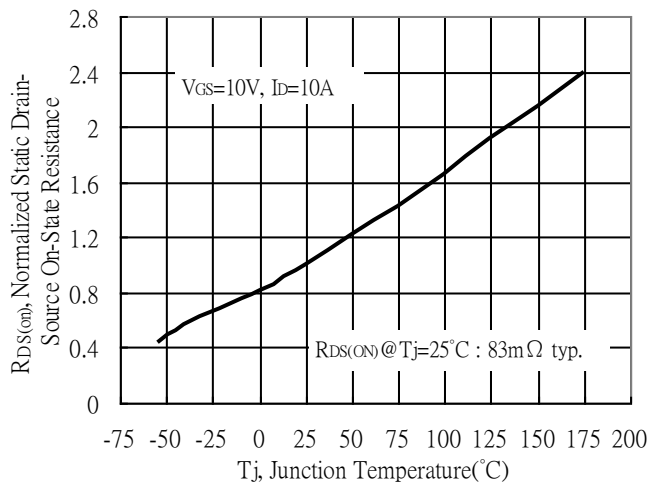
Reverse Drain Current vs Source-Drain Voltage



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

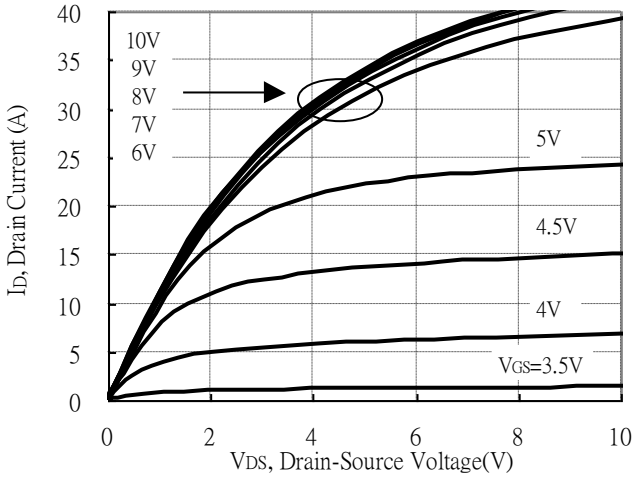


Drain-Source On-State Resistance vs Junction Tempearture

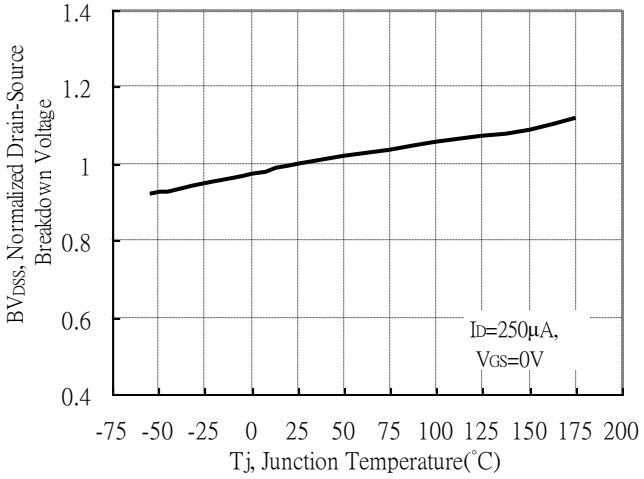


Typical Characteristics

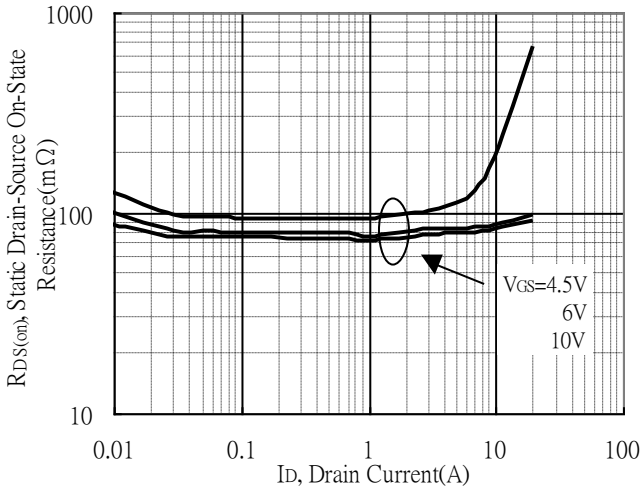
Typical Output Characteristics



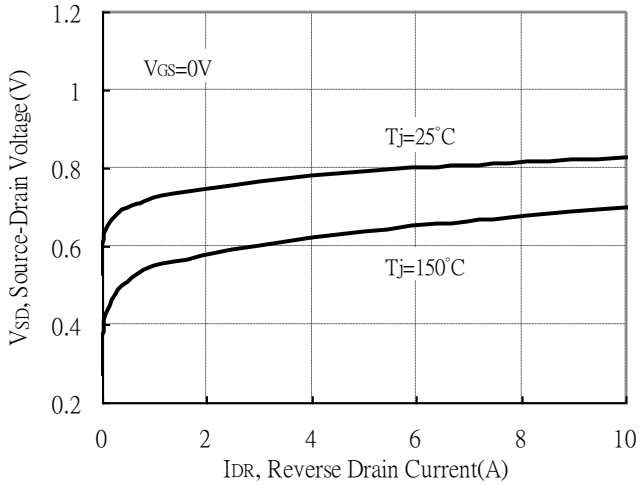
Brekdown Voltage vs Ambient Temperature



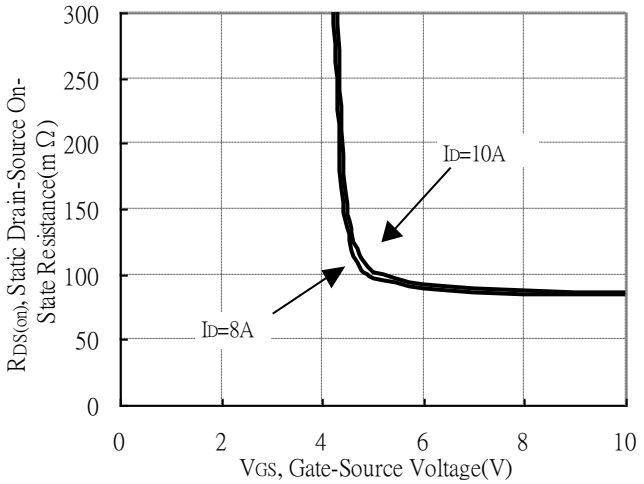
Static Drain-Source On-State resistance vs Drain Current



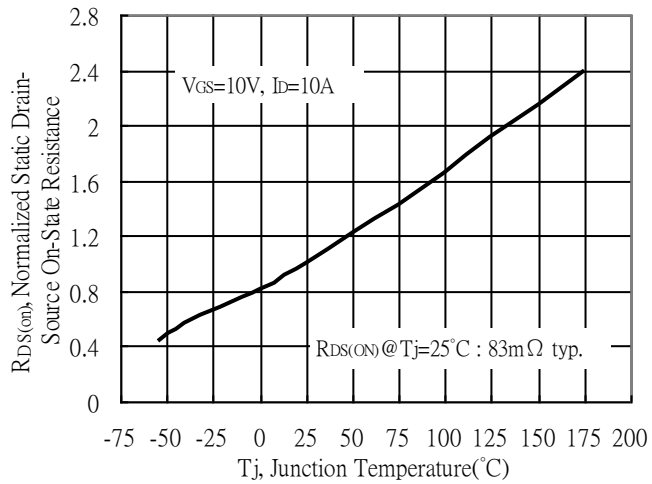
Reverse Drain Current vs Source-Drain Voltage



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

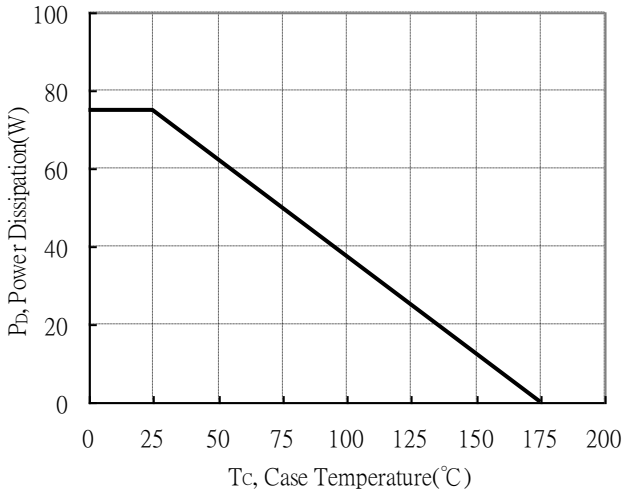


Drain-Source On-State Resistance vs Junction Tempearture

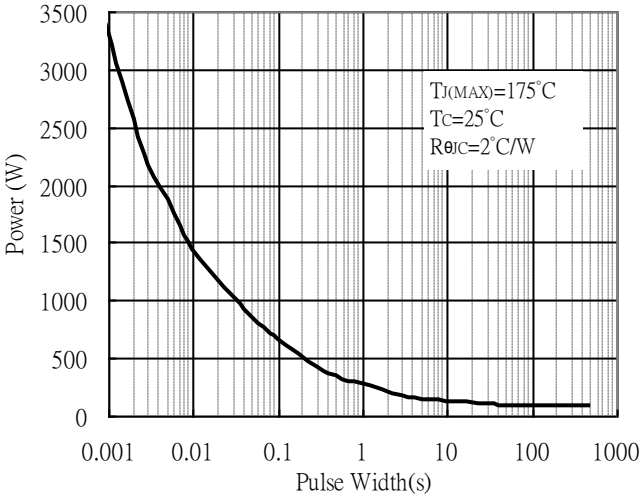


Typical Characteristics(Cont.)

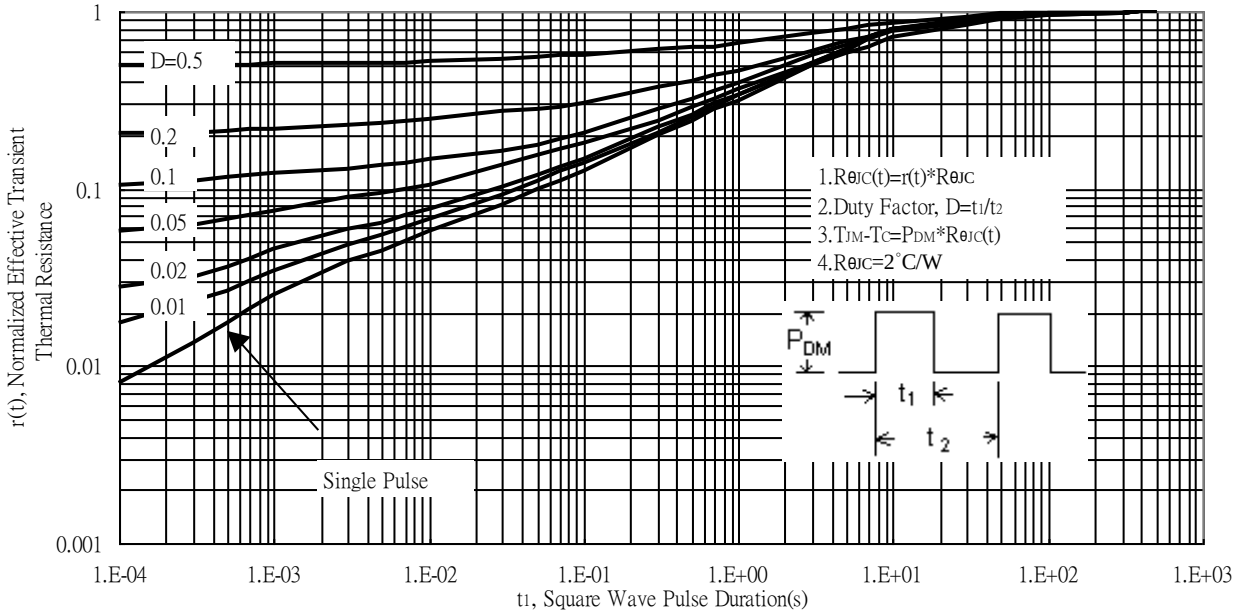
Power Derating Curve



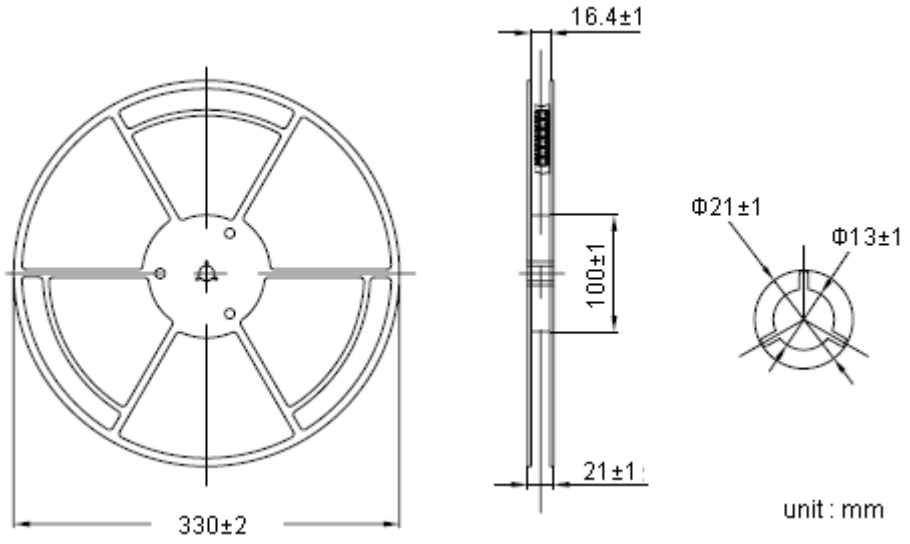
Single Pulse Power Rating, Junction to Case



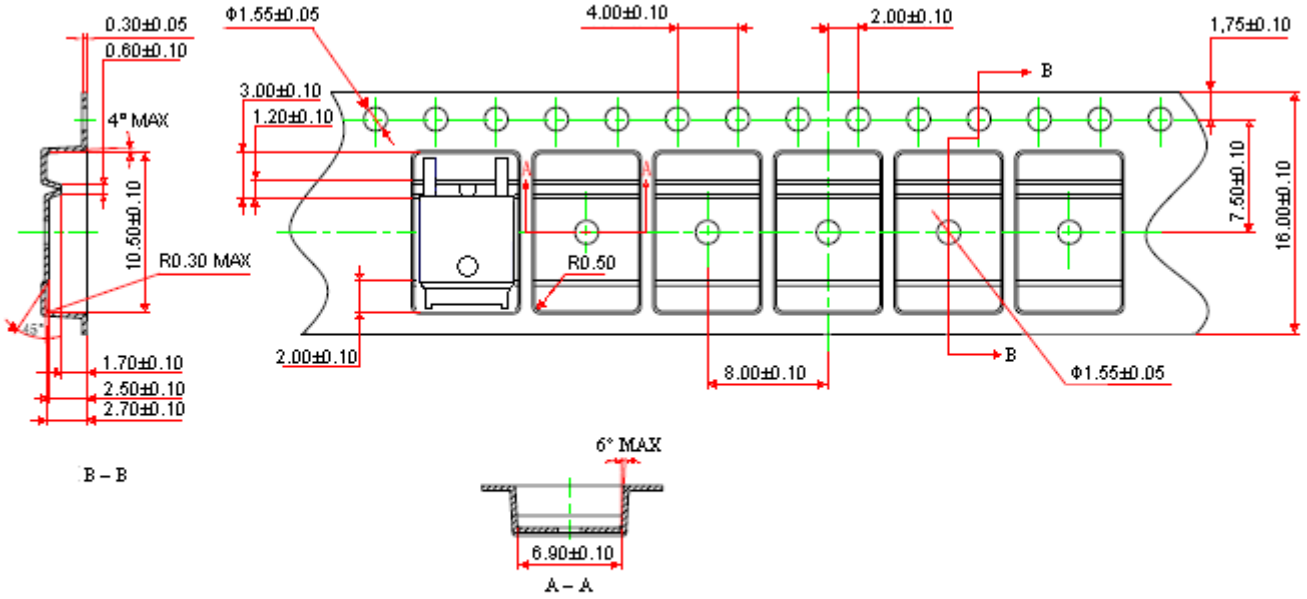
Transient Thermal Response Curves



Reel Dimension

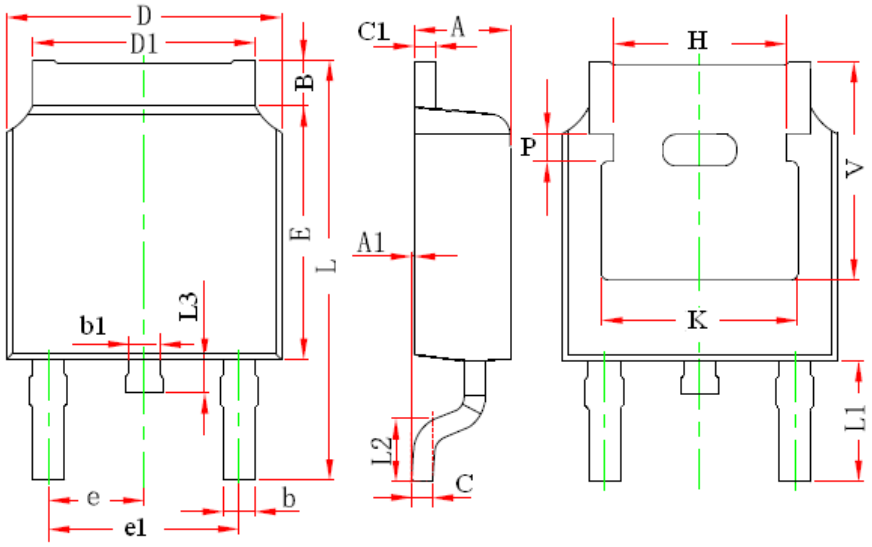


Carrier Tape Dimension

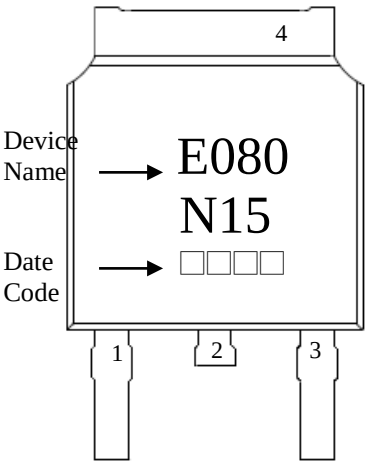


Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: conductive black polystyrene, antistatic coated : 10^{5} Ω/□~ 10^{11} Ω/□ unit : mm

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