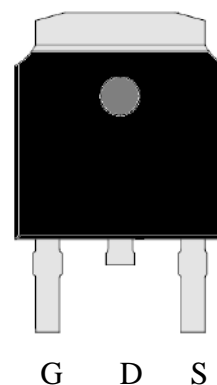


N -Channel Enhancement Mode Power MOSFET

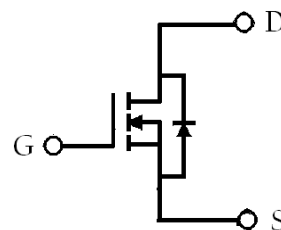
Features:

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

TO-252(DPAK)



BV_{DSS}	100V
I_D@V_{GS}=10V, T_C=25°C	29A
R_{DS(ON)}@V_{GS}=10V, I_D=10A	23mΩ (typ)
R_{DS(ON)}@V_{GS}=4.5V, I_D=7A	33mΩ (typ)



G : Gate D : Drain S :
Source

Ordering Information

Device	Package	Shipping
KJD030N10Q	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current @ $T_C=25^\circ\text{C}$, $V_{GS}=10\text{V}$	I_D	29	A
Continuous Drain Current @ $T_C=100^\circ\text{C}$, $V_{GS}=10\text{V}$		18	
Continuous Drain Current @ $T_A=25^\circ\text{C}$, $V_{GS}=10\text{V}$ *3		6.5	
Continuous Drain Current @ $T_A=70^\circ\text{C}$, $V_{GS}=10\text{V}$ *3		5.2	
Pulsed Drain Current *1	I_{DM}	116	
Avalanche Current (Typical)	I_{AS}	18	
Avalanche Energy @ $L=0.5\text{mH}$	E_{AS}	25	mJ
Total Power Dissipation @ $T_C=25^\circ\text{C}$	P_D	50	W
Total Power Dissipation @ $T_C=100^\circ\text{C}$		20	
Total Power Dissipation @ $T_A=25^\circ\text{C}$ *3		2.5	
Total Power Dissipation @ $T_A=70^\circ\text{C}$ *3		1.6	
Operating Junction and Storage Temperature Range	T_j, T_{stg}	$-55\sim+150$	$^\circ\text{C}$

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-ambient, max *3	$R_{\theta JA}$	50	
Thermal Resistance, Junction-to-ambient, max		110	

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

*2. Duty cycle $\leq 1\%$

*3. Surface mounted on 1 in² copper pad of FR-4 board

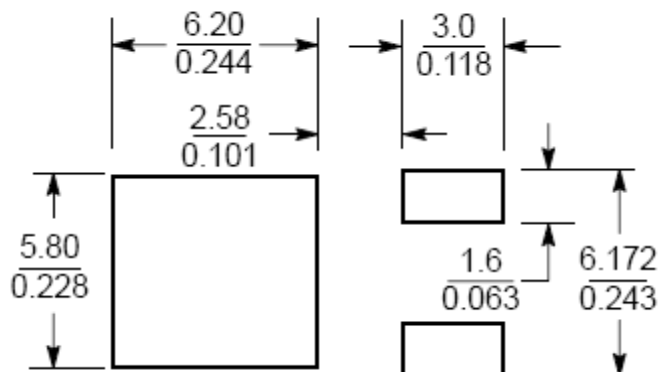
Characteristics ($T_C=25^\circ\text{C}$, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	100	-	-	V	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$
$\Delta BV_{DSS}/\Delta T_j$	-	0.07	-	$\text{V}/^\circ\text{C}$	Reference to 25°C , $I_D=250\mu\text{A}$
$V_{GS(th)}$	1.3	-	2.6	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
G_{FS} *1	-	20	-	S	$V_{DS}=10\text{V}, I_D=10\text{A}$
I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$
I_{DSS}	-	-	1	μA	$V_{DS}=80\text{V}, V_{GS}=0\text{V}$
	-	-	25		$V_{DS}=80\text{V}, V_{GS}=0\text{V}, T_j=125^\circ\text{C}$
$R_{DS(ON)}$ *1	-	23	30	m Ω	$V_{GS}=10\text{V}, I_D=10\text{A}$
	-	33	66		$V_{GS}=4.5\text{V}, I_D=7\text{A}$
Dynamic					
Q_g *1, 2	-	23	-	nC	$I_D=10\text{A}, V_{DS}=50\text{V}, V_{GS}=10\text{V}$
Q_{gs} *1, 2	-	2.4	-		
Q_{gd} *1, 2	-	10	-		
$t_{d(ON)}$ *1, 2	-	10	-	ns	$V_{DS}=50\text{V}, I_D=10\text{A}, V_{GS}=10\text{V}$,
t_r *1, 2	-	24	-		

$t_{d(OFF)}$ *1, 2	-	32.2	-		$R_G=3\Omega$
t_f *1, 2	-	13.4	-		
C_{iss}	-	705	-	pF	$V_{GS}=0V, V_{DS}=25V, f=1MHz$
C_{oss}	-	123	-		
C_{rss}	-	120	-		
R_g	-	1	-	Ω	$f=1MHz$
Source-Drain Diode					
I_S *1	-	-	29	A	
I_{SM} *3	-	-	116		
V_{SD} *1	-	0.74	1	V	$I_S=1A, V_{GS}=0V$
t_{rr}	-	32	-	ns	$I_F=10A, dI_F/dt=100A/\mu s$
Q_{rr}	-	36	-	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.

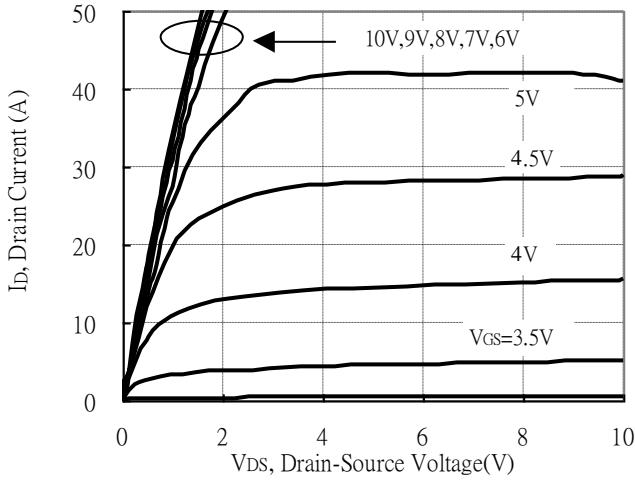
Recommended soldering footprint



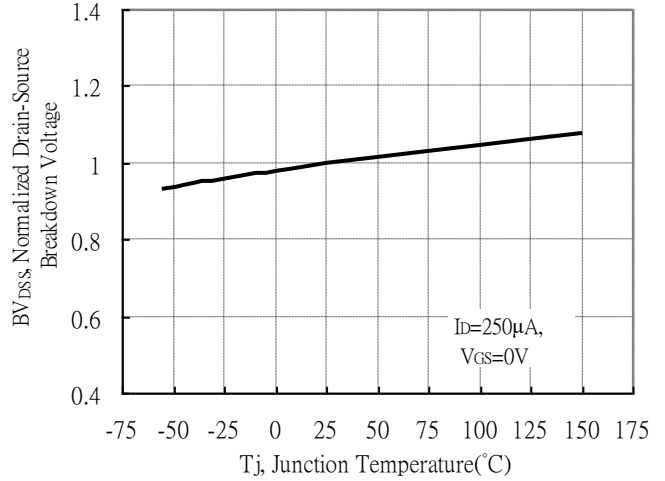
Unit ($\frac{mm}{inch}$)

Typical Characteristics

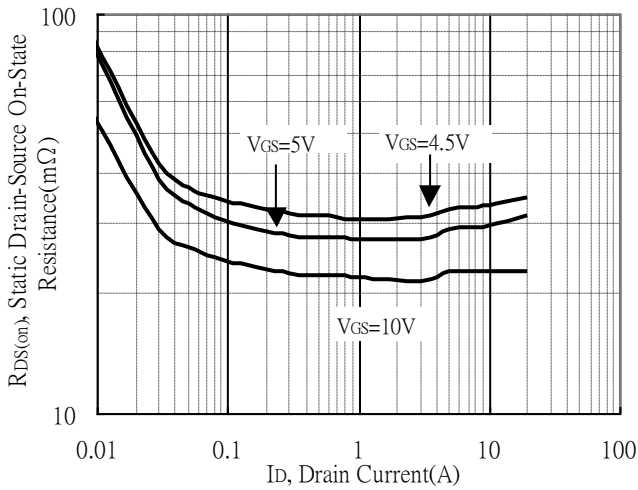
Typical Output Characteristics



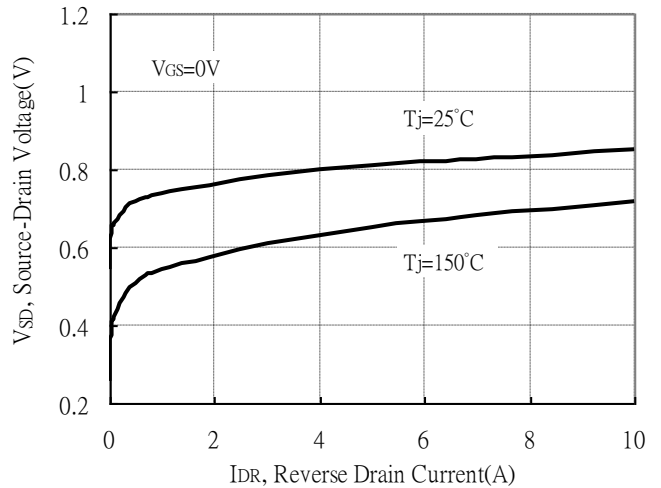
Breakdown Voltage vs Ambient Temperature



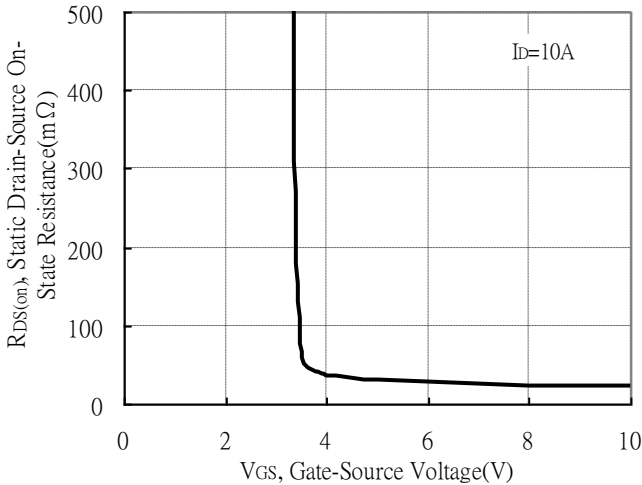
Static Drain-Source On-State resistance vs Drain Current



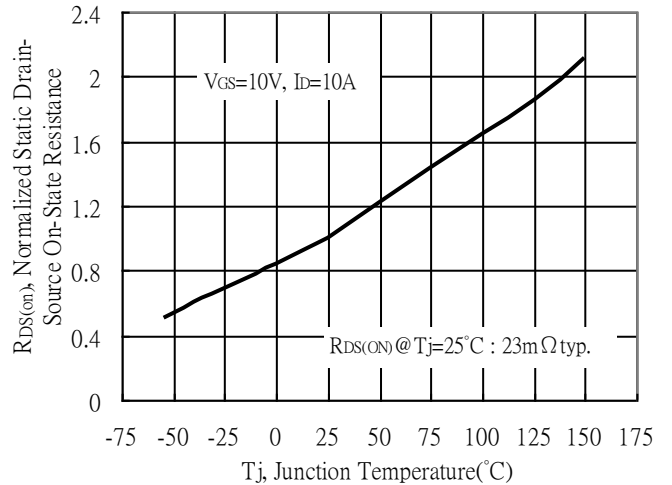
Reverse Drain Current vs Source-Drain Voltage



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

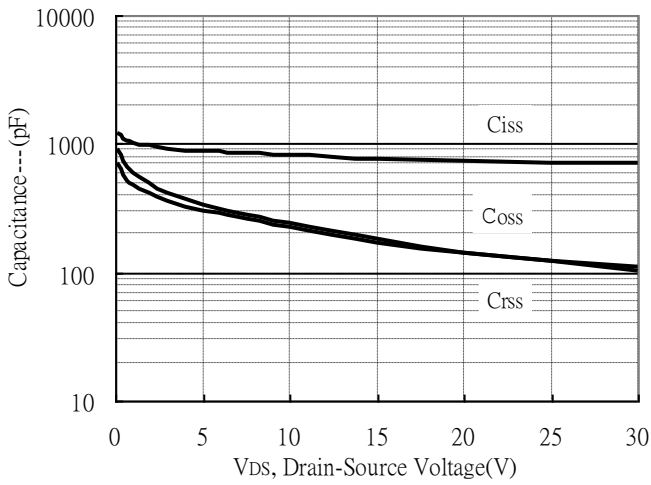


Drain-Source On-State Resistance vs Junction Temperature

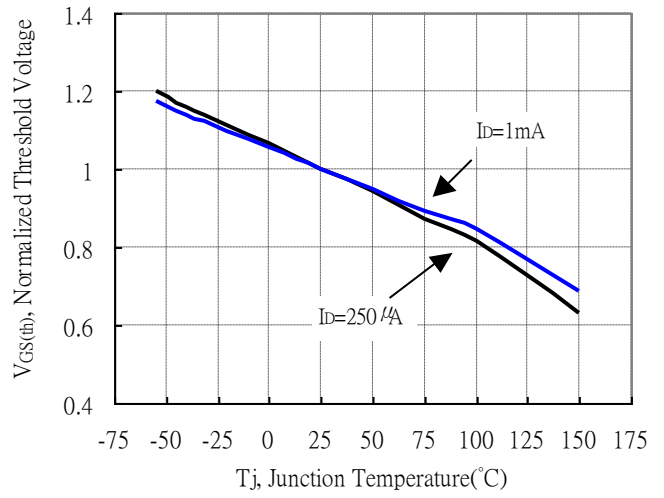


Typical Characteristics(Cont.)

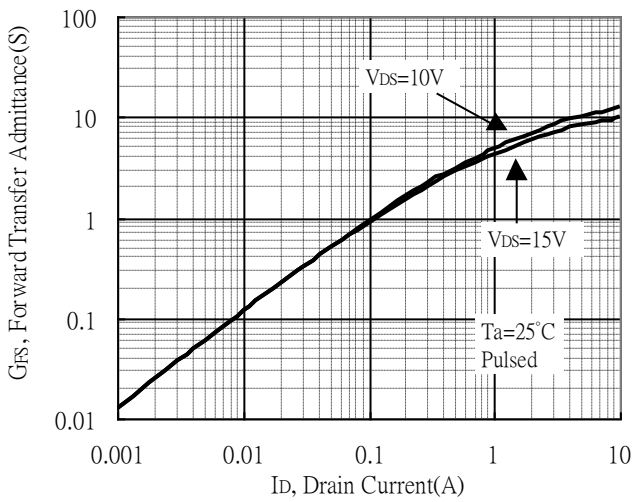
Capacitance vs Drain-to-Source Voltage



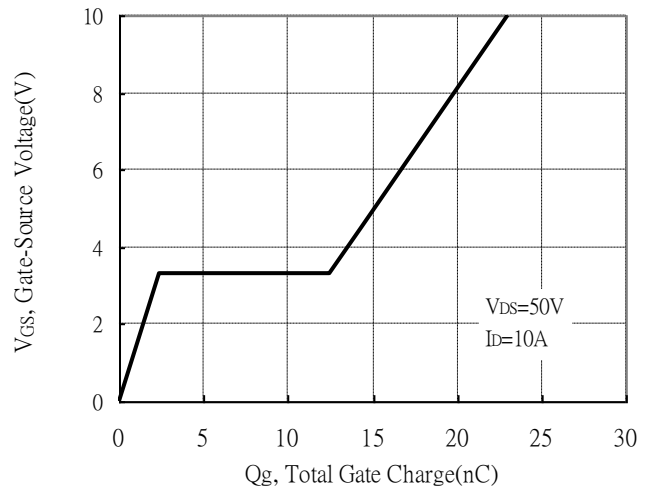
Threshold Voltage vs Junction Temperature



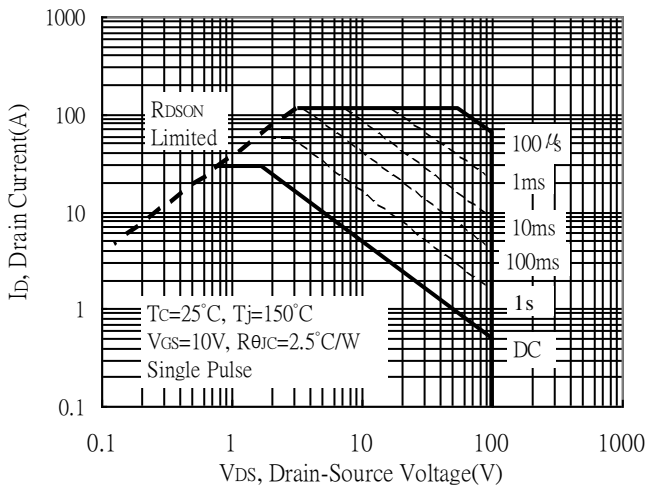
Forward Transfer Admittance vs Drain Current



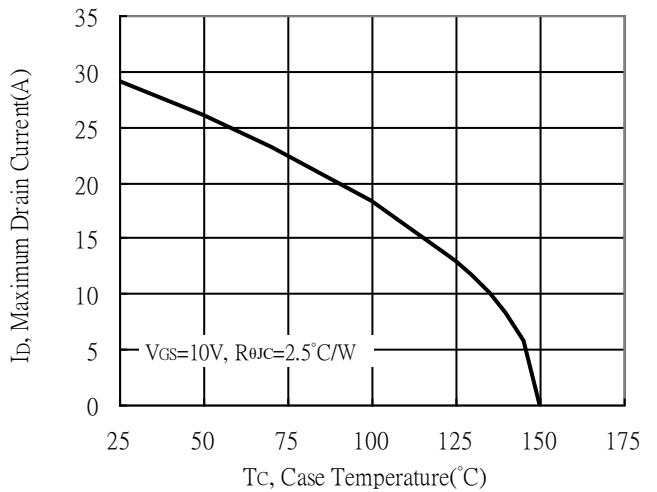
Gate Charge Characteristics



Maximum Safe Operating Area

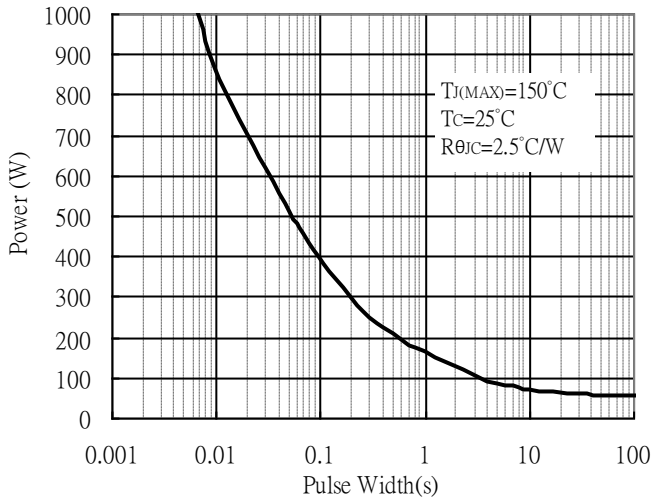


Maximum Drain Current vs Case Temperature

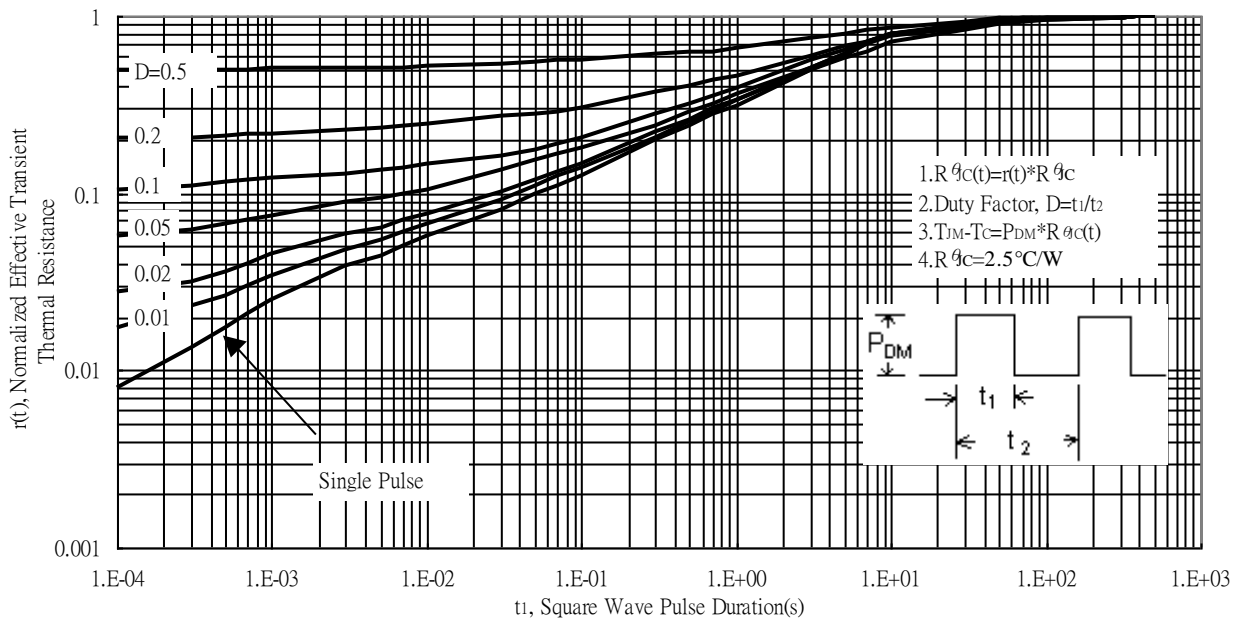


Typical Characteristics(Cont.)

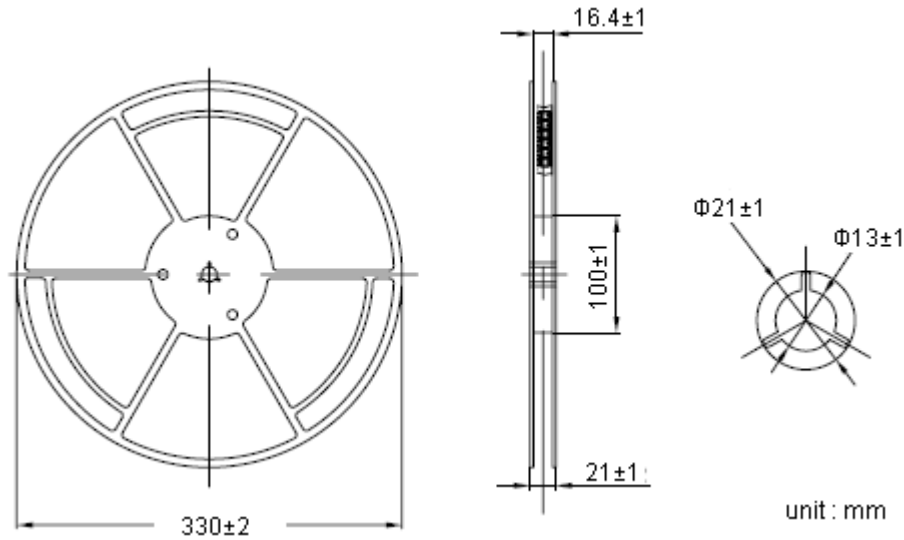
Single Pulse Power Rating, Junction to Case



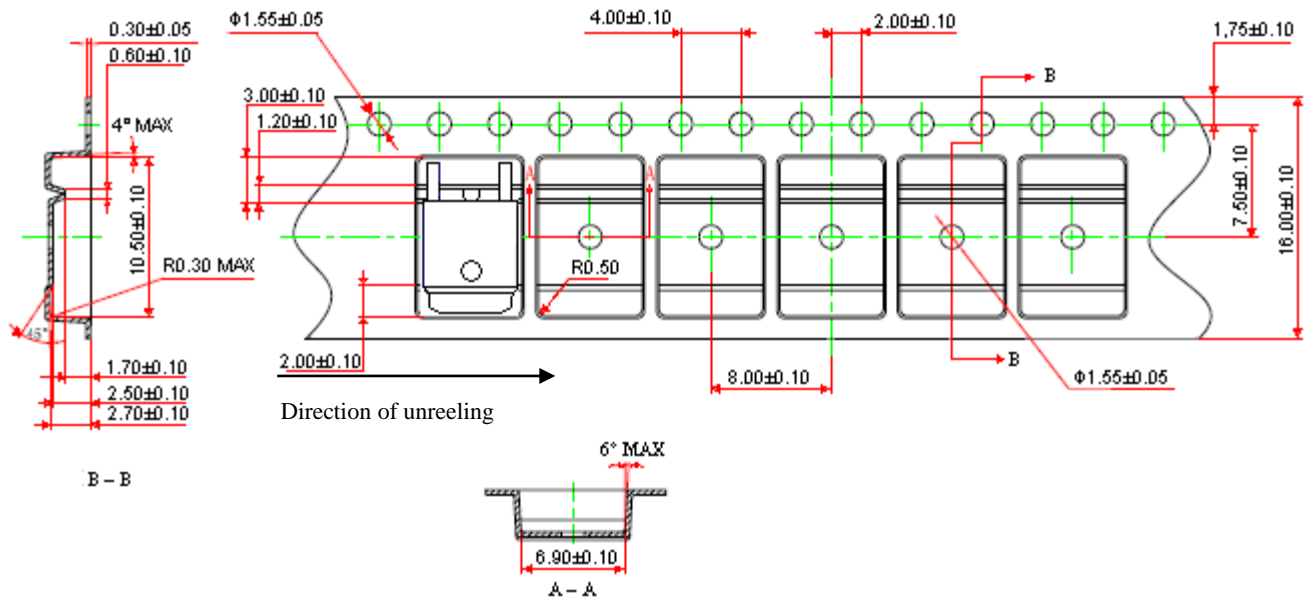
Transient Thermal Response Curves



Reel Dimension



Carrier Tape Dimension

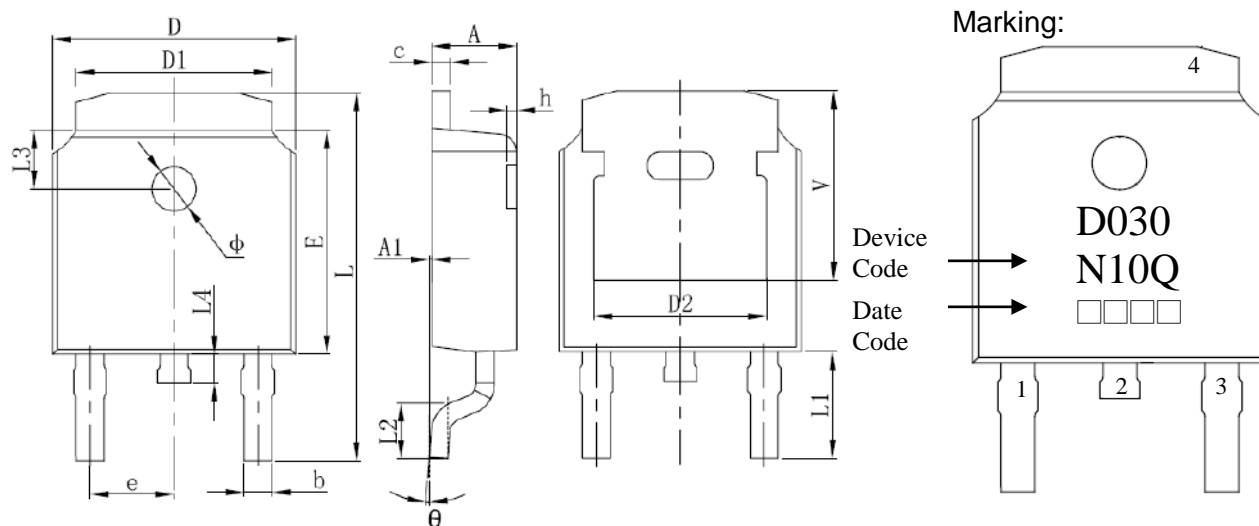


Notes:

1. 10 sprocket hole pitch cumulative tolerance ± 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

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

Date Code :

First Code : Last digit of Christian Year

Second 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

Last Two Codes : Production Serial Code, 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