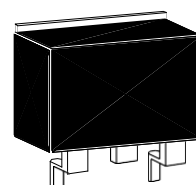


N-Channel Enhancement Mode Power MOSFET

Features:

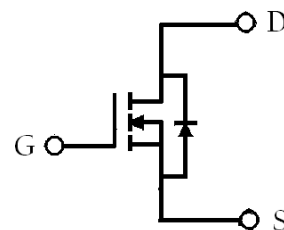
- Low On Resistance
- Simple Drive Requirement
- Low Gate Charge
- Fast Switching Characteristic
- RoHS compliant package

TO-263



G D S

BV_{DSS}	100V
I_D@V_{GS}=10V, T_C=25°C	120A
I_D@V_{GS}=10V, T_A=25°C	11.2A
R_{DS(ON)}@V_{GS}=10V, I_D=50A	6.5 mΩ(typ)



G : Gate D : Drain S : Source

Ordering Information

Device	Package	Shipping
KWE5D0N10RF3	TO-263 RoHS compliant package)	800 pcs / Tape & Reel

Absolute Maximum Ratings (T_C=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage (Note 1)		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current @T _C =25°C, V _{GS} =10V (Note 1)		I _D	120*	A
Continuous Drain Current @T _C =100°C, V _{GS} =10V (Note 1)			84.8*	
Continuous Drain Current @T _A =25°C, V _{GS} =10V (Note 2)		I _{DSM}	11.2	
Continuous Drain Current @T _A =70°C, V _{GS} =10V (Note 2)			8.9	
Pulsed Drain Current @ V _{GS} =10V		I _{DM}	350*	
Avalanche Current @ L=100μH		I _{AS}	90	
Single Pulse Avalanche Energy @ L=1mH, I _D =40A, V _{DD} =50V (Note 4)		E _{AS}	800	mJ
Repetitive Avalanche Energy (Note 3)		E _{AR}	25	
Power Dissipation	T _C =25°C (Note 1)	P _D	250	W
	T _C =100°C (Note 1)		125	
	T _A =25°C (Note 2)	P _{DSM}	2.0	
	T _A =70°C (Note 2)		1.3	
Maximum Temperature for Soldering @ Lead at 0.063 in(1.6mm) from case for 10 seconds		T _L	300	°C
Maximum Temperature for Soldering @ Package Body for 10 seconds		T _{PKG}	260	
Operating Junction and Storage Temperature		T _j , T _{stg}	-55~+175	

*Drain current limited by maximum junction temperature

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{θJC}	0.6	°C/W
Thermal Resistance, Junction-to-ambient, max (Note 2)	R _{θJA}	62.5	

Note : 1.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.

2. The value of R_{θJA} 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 power dissipation P_{DSM} is based on R_{θJA} 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.

3. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=175 °C. Ratings are based on low frequency and low duty cycles to keep initial T_J=25°C.

4. 100% tested by condition of L=0.1mH, I_{AS}=50A, V_{GS}=10V, V_{DD}=50V.

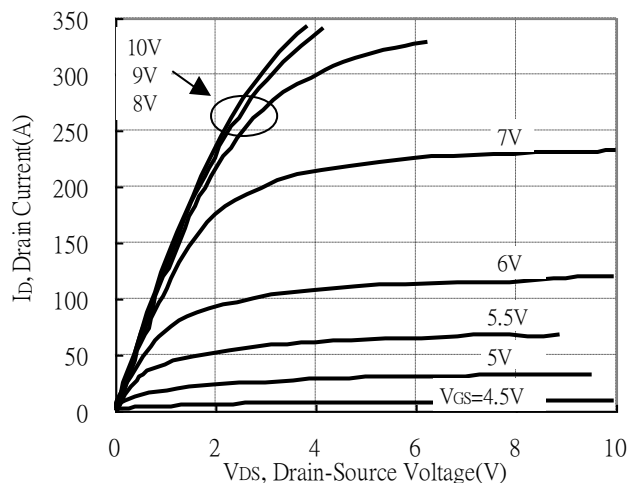
Characteristics (Tj=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =250μA
ΔBV _{DSS} /ΔTj	-	80	-	mV/°C	Reference to 25°C, I _D =250μA
V _{GS(th)}	2	-	4	V	V _{DS} = V _{GS} , I _D =250μA
*G _{FS}	-	27.5	-	S	V _{DS} =10V, I _D =20A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} =80V, V _{GS} =0V
	-	-	25		V _{DS} =80V, V _{GS} =0V, Tj=125°C
*R _{DS(ON)}	-	6.5	9.5	mΩ	V _{GS} =10V, I _D =50A
Dynamic					
*Qg	34	68.8	103	nC	V _{DS} =80V, I _D =50A, V _{GS} =10V
*Qgs	12	23.9	36		
*Qgd	6	12.9	20		
*td(ON)	-	36.8	-	ns	V _{DS} =50V, I _D =20A, V _{GS} =10V, R _{GS} =3Ω
*tr	-	21	-		
*td(OFF)	-	63	-		
*tf	-	14	-		
Ciss	3360	4802	6243	pF	V _{GS} =0V, V _{DS} =50V, f=1MHz
Coss	-	385	-		
Crss	-	20	-		
Rg	-	2.5	-	Ω	f=1MHz
Source-Drain Diode					
*Is	-	-	120	A	
*ISM	-	-	350		
*VSD	-	0.83	1.2	V	I _S =20A, V _{GS} =0V
*trr	-	47.5	-	ns	V _{GS} =0V, I _F =20A, dI _F /dt=100A/μs
*Qrr	-	99.3	-	nC	

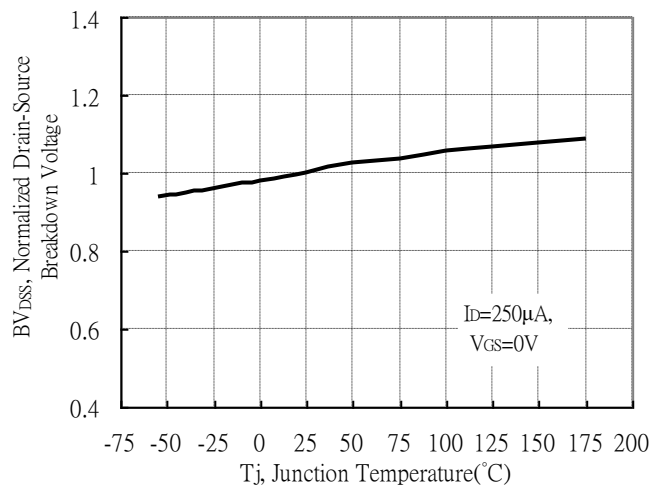
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

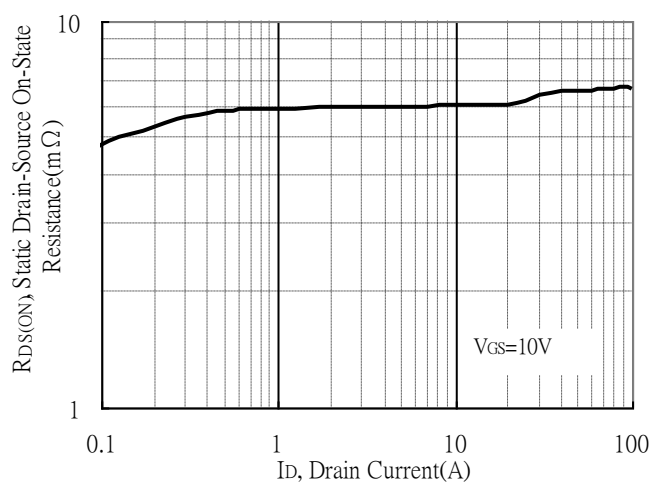
Typical Output Characteristics



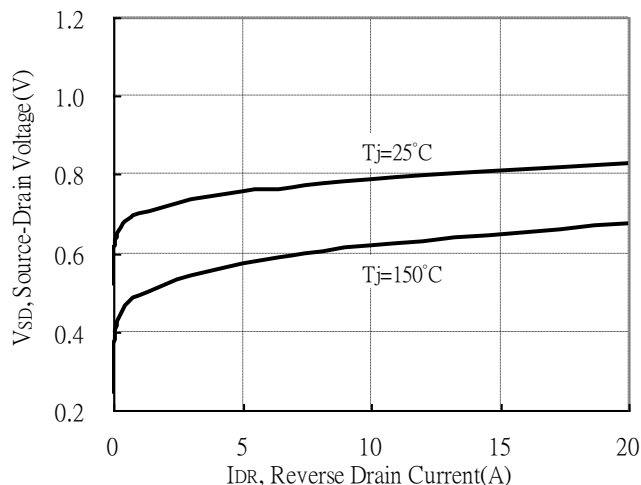
Breakdown Voltage vs Ambient Temperature



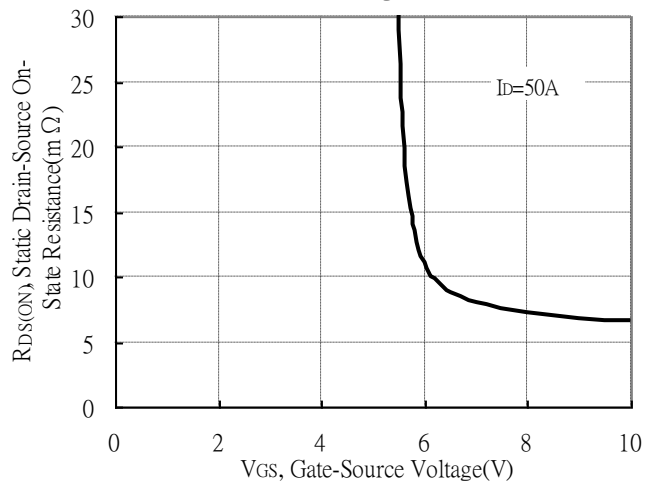
Static Drain-Source On-State resistance vs Drain Current



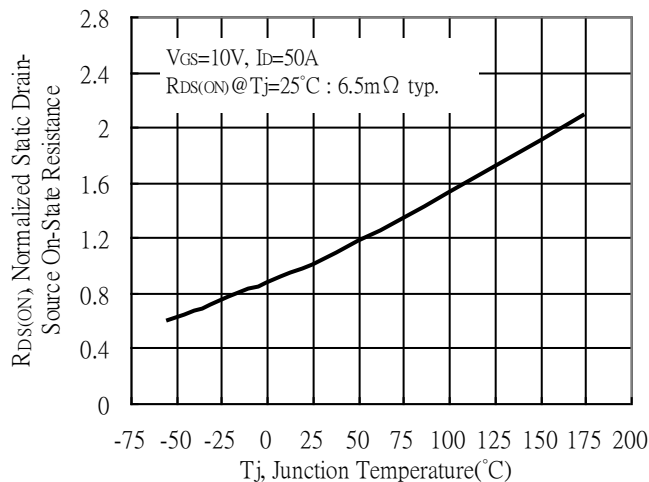
Reverse Drain Current vs Source-Drain Voltage



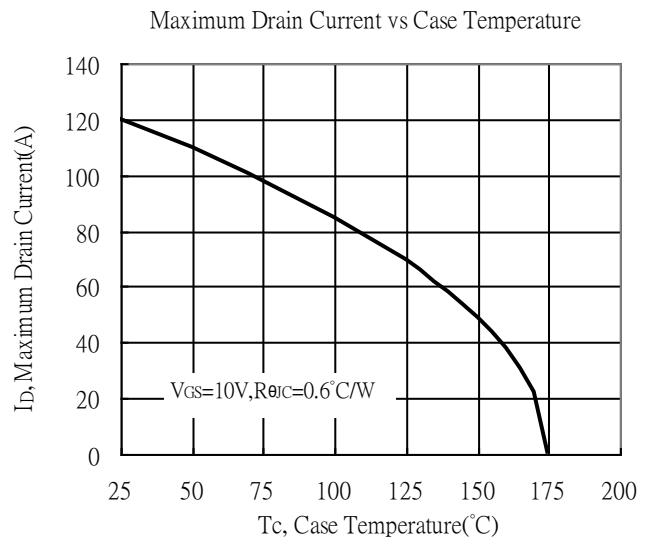
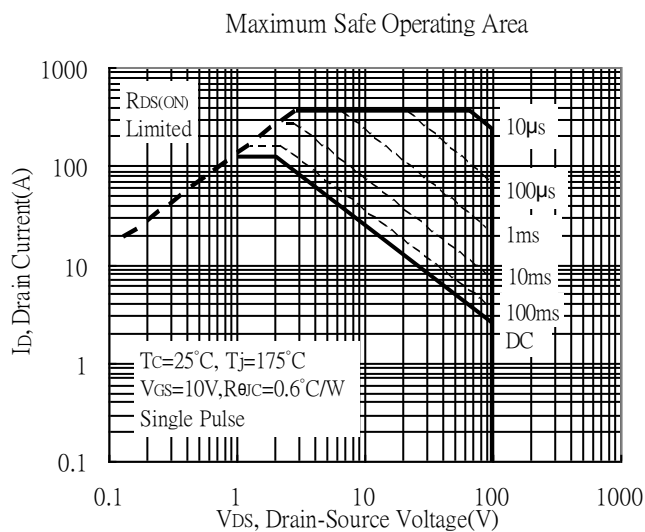
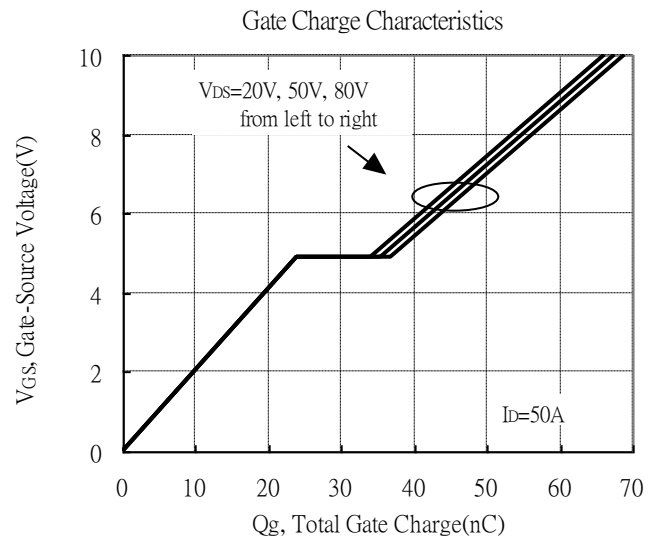
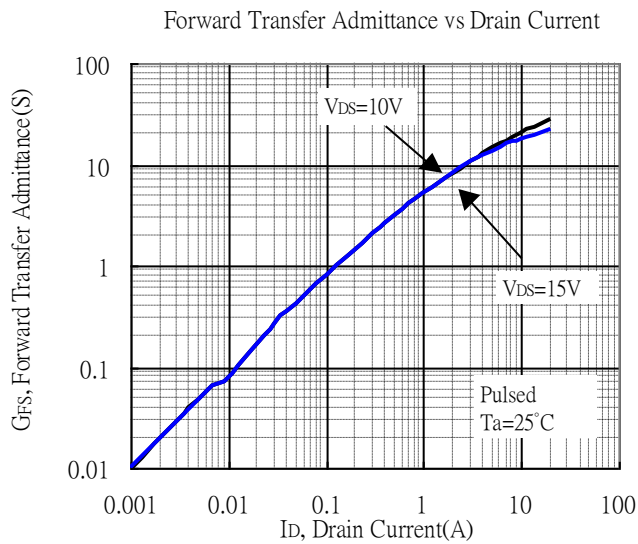
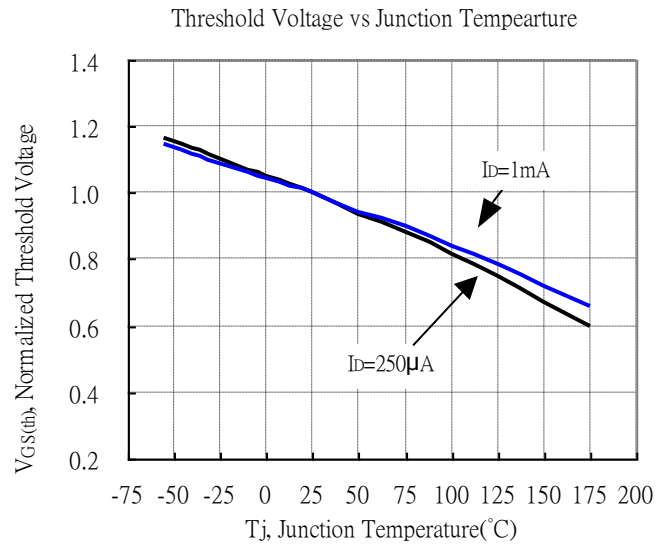
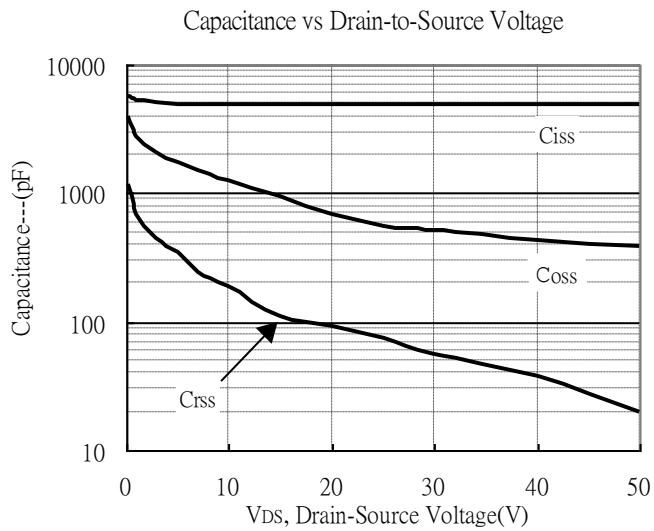
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

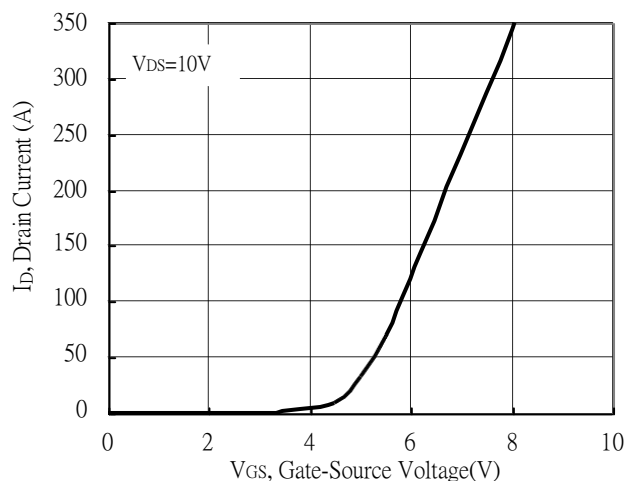


Typical Characteristics(Cont.)

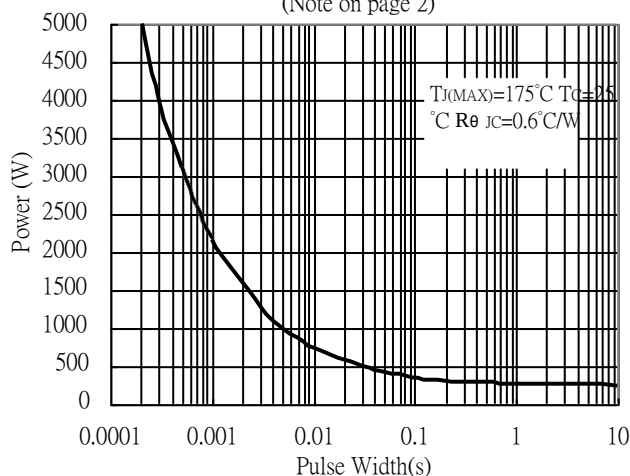


Typical Characteristics(Cont.)

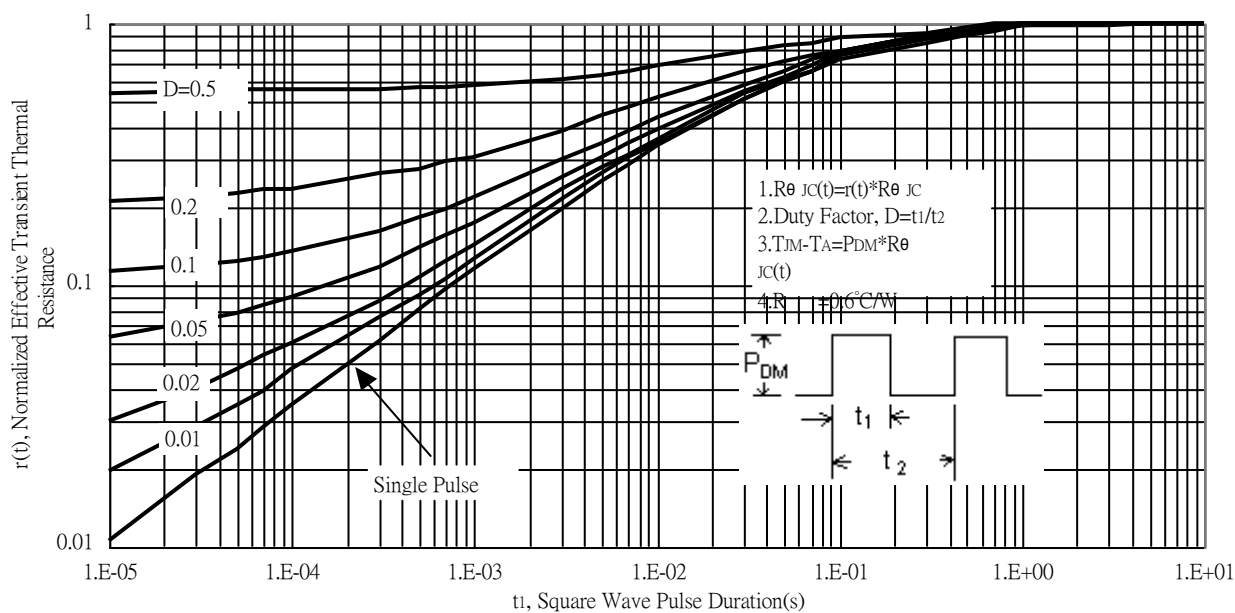
Typical Transfer Characteristics



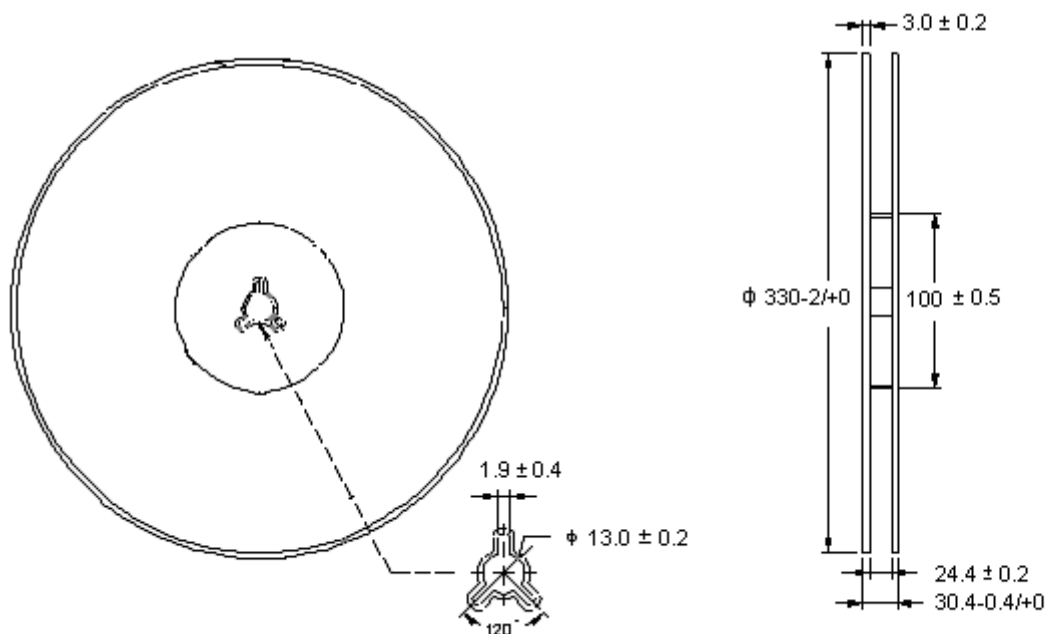
Single Pulse Power Rating, Junction to Case
 (Note on page 2)



Transient Thermal Response Curves

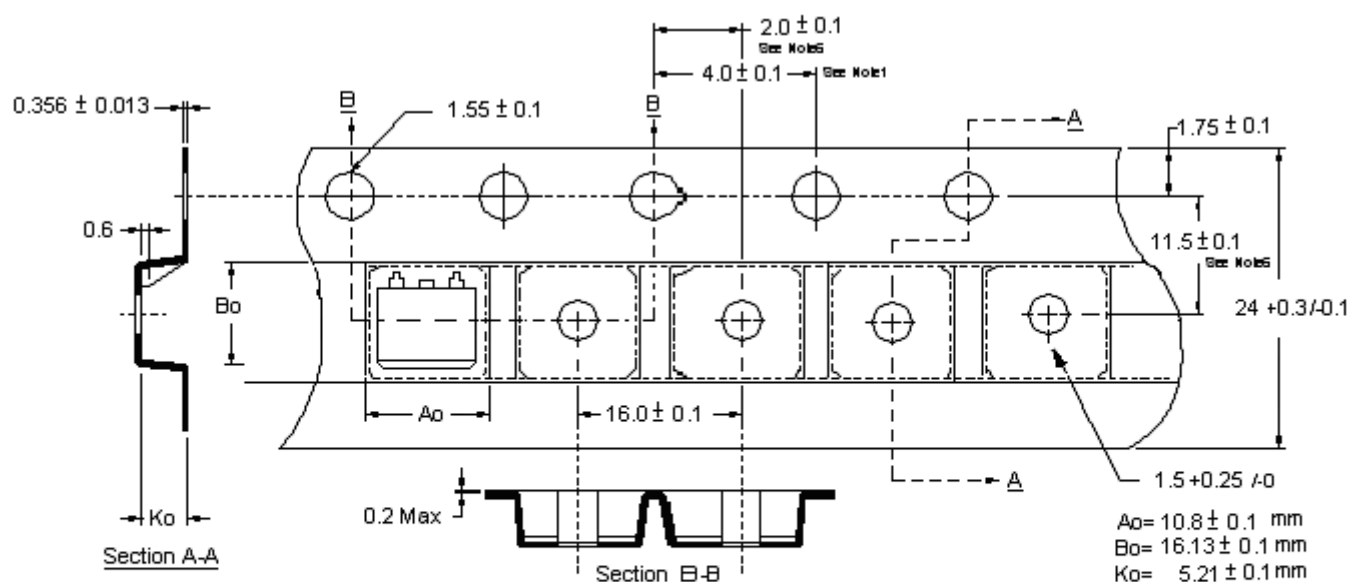


Reel Dimension

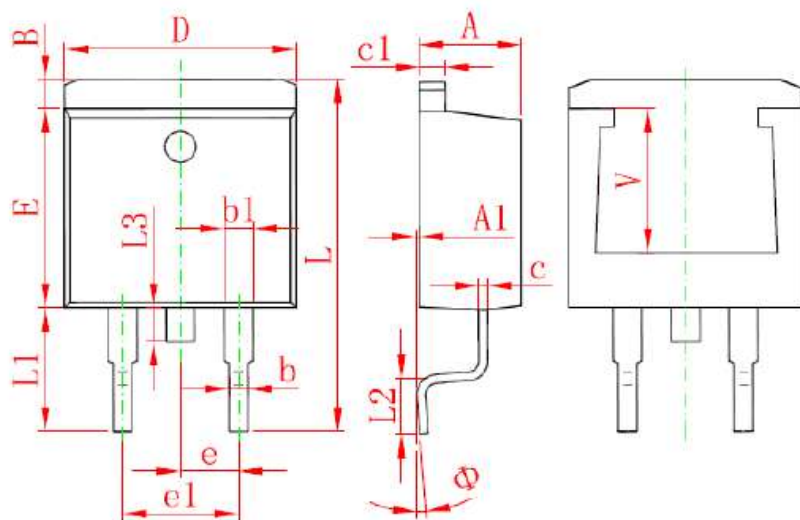


Unit: millimeter

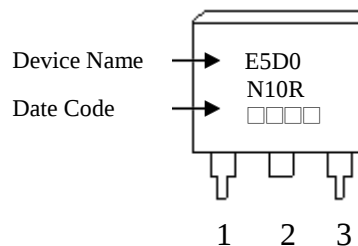
Carrier Tape Dimension



TO-263 Dimension



Marking :



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

3-Lead Plastic Surface Mounted Package
 Package Code : F3

Date Code : (From left to right)

First Code : Year code, the last digit of Christnr year. For example, 2014→4, 2015→, 2016→6, ..., etc.

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

Third and fourth codes : production serial number, 01~99

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184	e	2.540 TYP		0.100 TYP	
A1	0.000	0.150	0.000	0.006	e1	4.980	5.180	0.196	0.204
B	1.120	1.420	0.044	0.056	L	14.940	15.500	0.588	0.610
b	0.710	0.910	0.028	0.036	L1	4.950	5.450	0.195	0.215
b1	1.170	1.370	0.046	0.054	L2	2.340	2.740	0.092	0.108
c	0.310	0.530	0.012	0.021	L3	1.300	1.700	0.051	0.067
c1	1.170	1.370	0.046	0.054	Φ	0°	8°	0°	8°
D	10.010	10.310	0.394	0.406	V	6.400 REF		0.253 REF	
E	8.500	8.900	0.335	0.350					