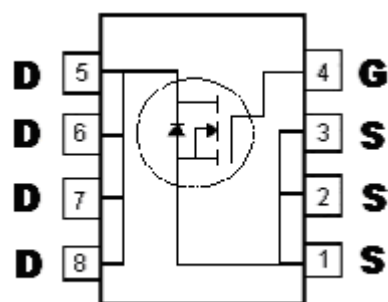
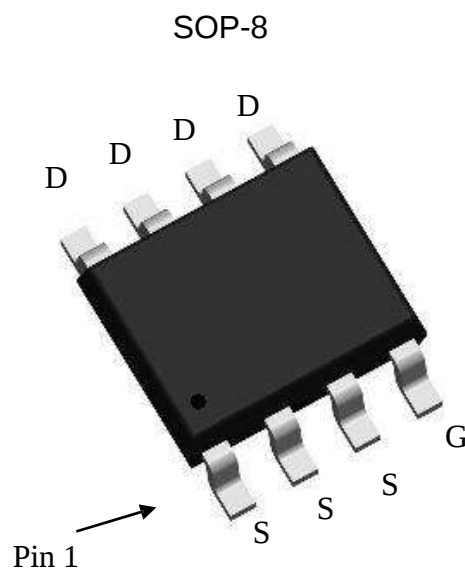


N-Channel Enhancement Mode Power MOSFET

Features:

- Simple drive requirement
- Low on-resistance
- Fast switching characteristic
- Pb-free & halogen-free package



G : Gate D : Drain S : Source

BV_{DSS}	150V
I_D @ T_A=25°C, V_{GS}=10V	4.9A
R_{DS(ON)}@V_{GS}=10V, I_D=4.5A	48 mΩ(typ)

Ordering Information

Device	Package	Shipping
KSCE050N15BR	SOP-8 (RoHS compliant & 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 @ V _{GS} =10V, T _C =25°C	I _D	6.2	A
Continuous Drain Current @ V _{GS} =10V, T _C =100°C		3.9	
Continuous Drain Current @ V _{GS} =10V, T _A =25°C		4.9	
Continuous Drain Current @ V _{GS} =10V, T _A =70°C		3.9	
Pulsed Drain Current	I _{DM}	20 *1	mJ
Avalanche Current @ L=0.1mH	I _{AS}	32	
Avalanche Energy @ L=1mH, I _D =16A, V _{DD} =25V	E _{AS}	128 *3	
Repetitive Avalanche Energy @ L=0.05mH	E _{AR}	1.6 *2	W
Total Power Dissipation	P _D	3.1	
		2.0	
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

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

*2. Duty cycle ≤ 1%

*3. 100% tested by conditions of L=0.1mH, I_{AS}=4.5A, V_{GS}=10V, V_{DD}=25V

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case	R _{θJC}	25	°C/W
Thermal Resistance, Junction-to-ambient (Note)	R _{θJA}	40	

Note : 40°C / W when mounted on a 1 in² pad of 2 oz copper, t≤10s; 125°C/W when mounted on minimum pad.

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
V _{GS(th)}	2	-	4		V _{DS} = V _{GS} , I _D =250μA
G _{FS}	-	7.5	-	S	V _{DS} = 10V, I _D =5A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} = 120V, V _{GS} = 0V
	-	-	10		V _{DS} = 120V, V _{GS} = 0V, T _j =85°C
*R _{DS(ON)}	-	48	65	mΩ	V _{GS} = 10V, I _D =4.5A
Dynamic					
Q _g *1, 2	-	20.1	30	nC	V _{DS} =75V, I _D =2A, V _{GS} =10V
Q _{gs} *1, 2	-	5.3	-		
Q _{gd} *1, 2	-	4.7	-		
C _{iss}	-	1224	1836	pF	V _{DS} =75V, V _{GS} =0V, f=1MHz
C _{oss}	-	105	158		
Cr _{ss}	-	16	32		

Characteristics (Cont. T_c=25°C, unless otherwise specified)

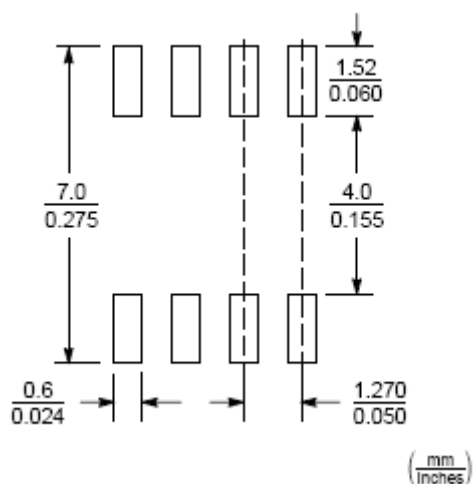
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Dynamic					
t _d (ON) *1, 2	-	15.4	23	ns	V _{DS} =75V, I _D =1A, V _{GS} =10V, R _G =6Ω
t _r *1, 2	-	17.6	26		
t _d (OFF) *1, 2	-	35.4	53		
t _f *1, 2	-	9.4	14		
R _g	-	1	-	Ω	f=1MHz
Source-Drain Diode Ratings and Characteristics					
I _S *1	-	-	4.2	A	
I _{SM} *3	-	-	20		
V _{SD} *1	-	0.77	1.2	V	I _S =2.3A, V _{GS} =0V
t _{rr}	-	37.8	-	ns	I _F =2.3A, dI _F /dt=100A/μs
Q _{rr}	-	58.8	-	nC	

Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

*2.Independent of operating temperature

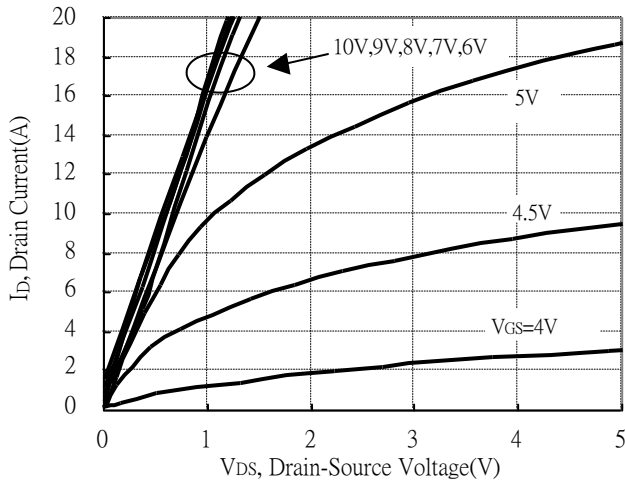
*3.Pulse width limited by maximum junction temperature.

Recommended Soldering Footprint

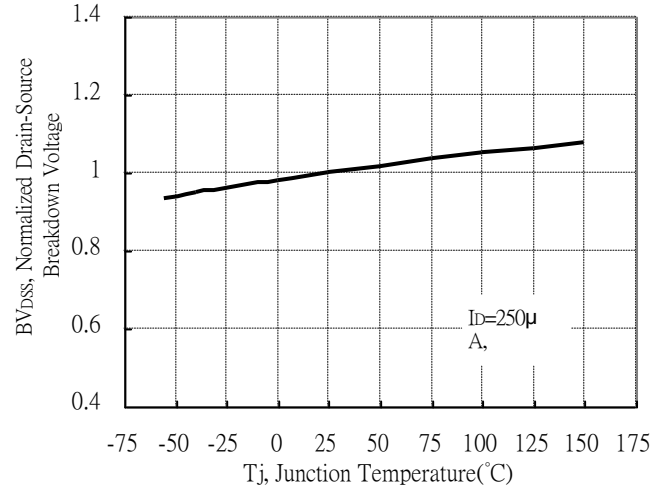


Typical Characteristics

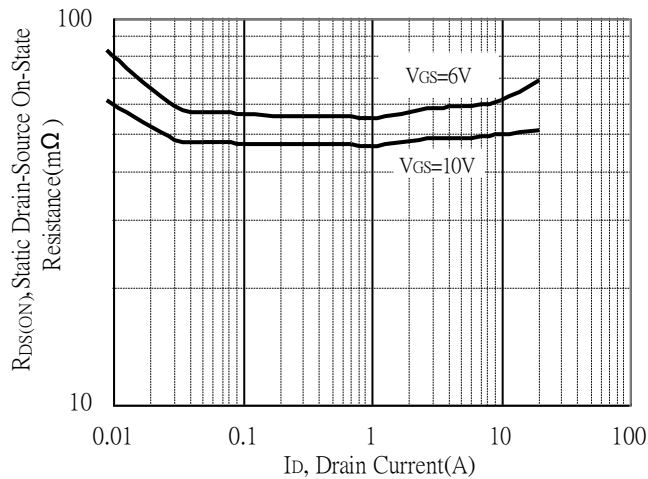
Typical Output Characteristics



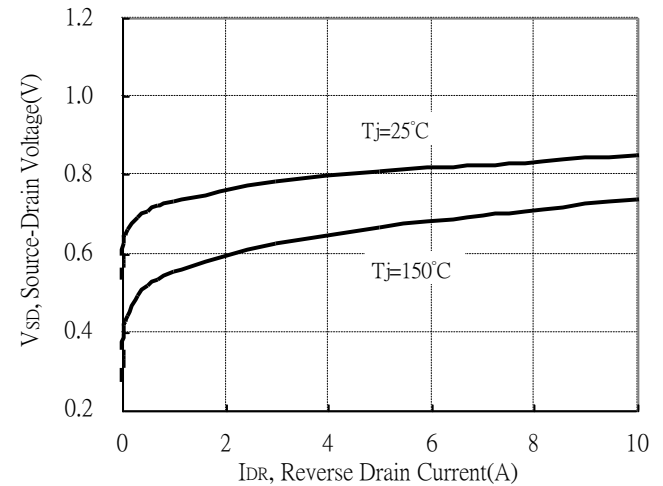
Breakdown Voltage vs Ambient Temperature



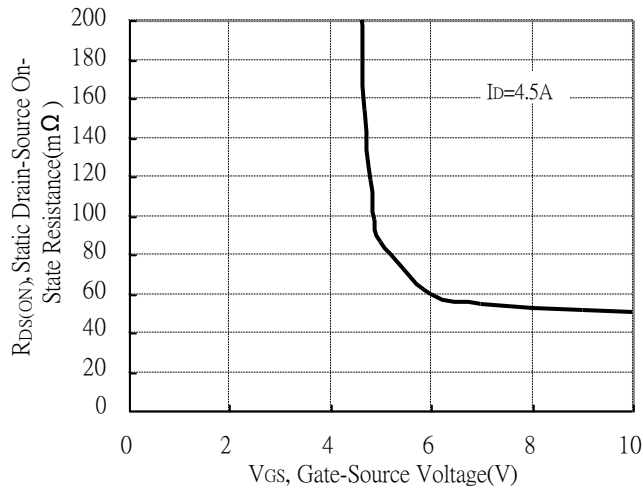
Static Drain-Source On-State resistance vs Drain Current



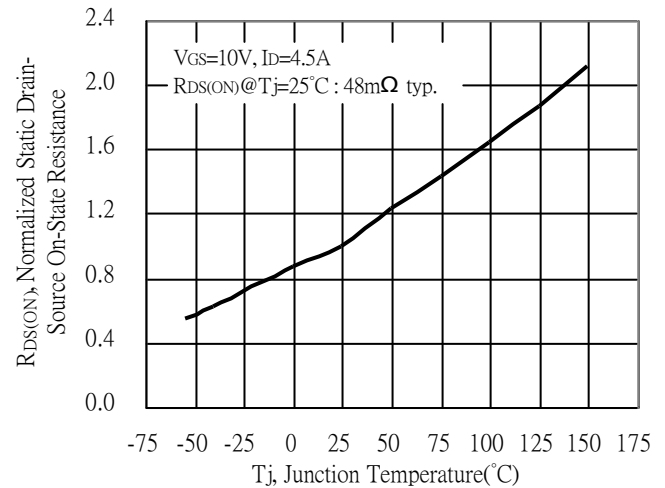
Reverse Drain Current vs Source-Drain Voltage



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

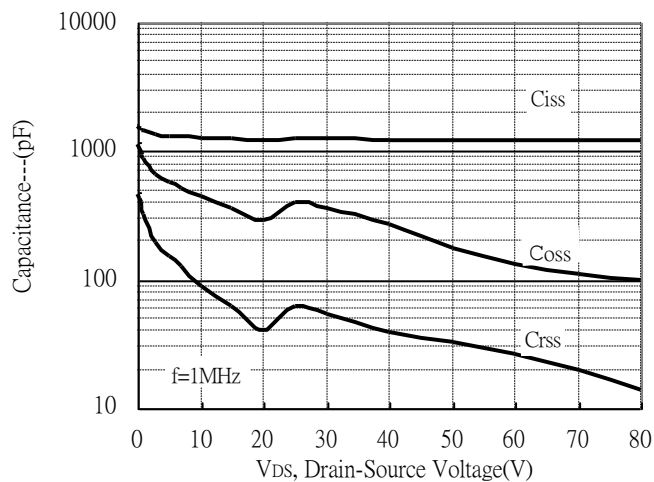


Drain-Source On-State Resistance vs Junction Temperature

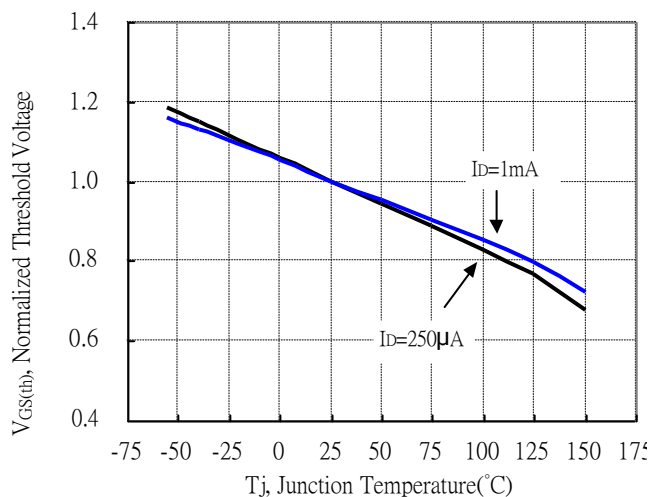


Typical Characteristics(Cont.)

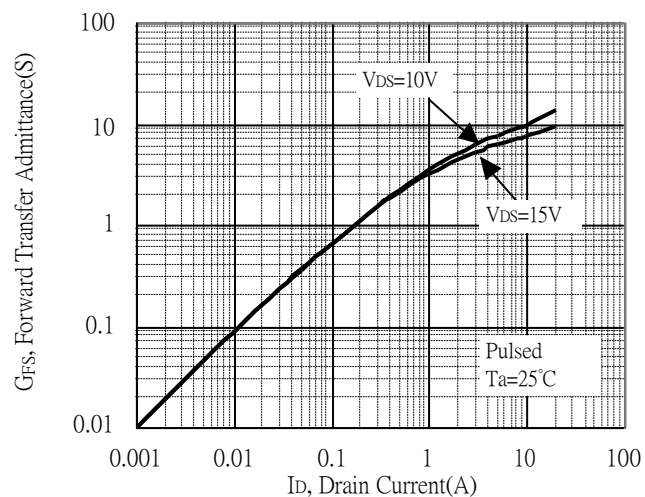
Capacitance vs Drain-to-Source Voltage



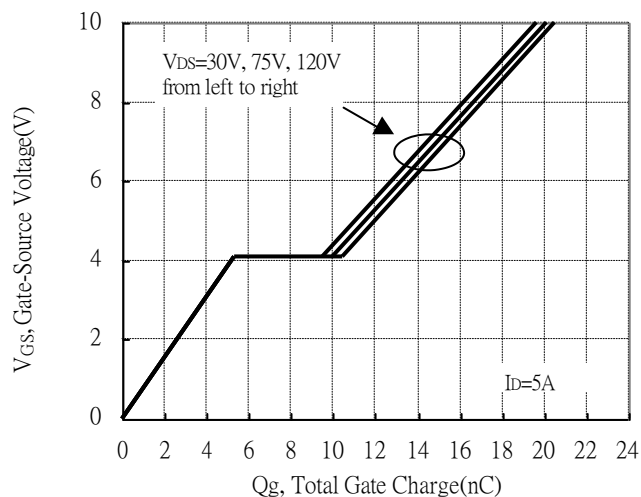
Threshold Voltage vs Junction Temperature



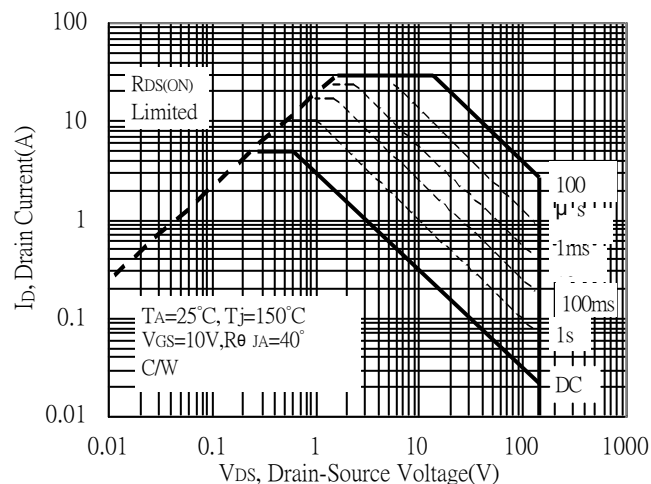
Forward Transfer Admittance vs Drain Current



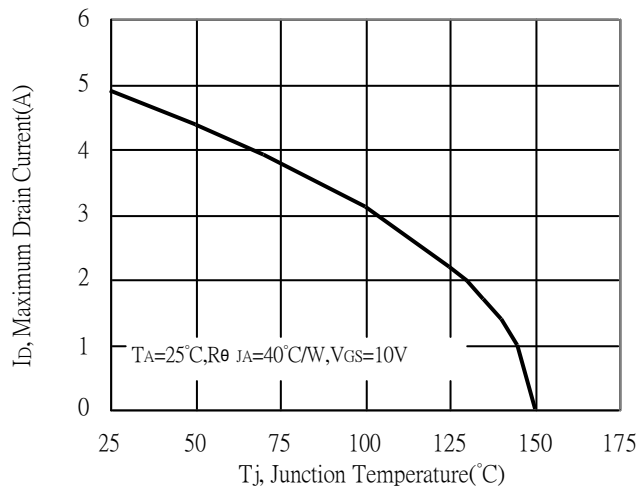
Gate Charge Characteristics



Maximum Safe Operating Area

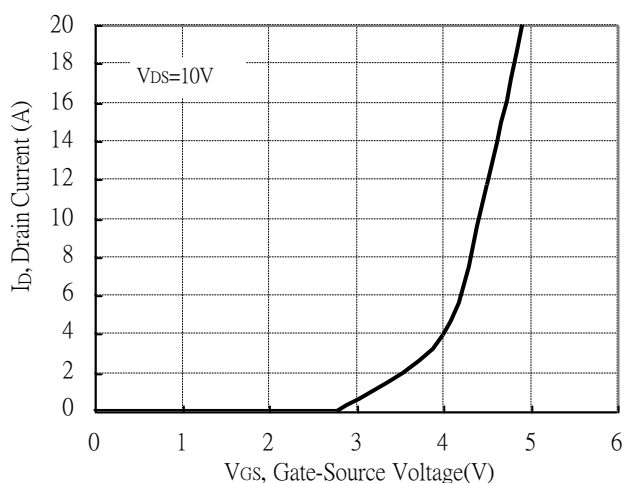


Maximum Drain Current vs Junction Temperature

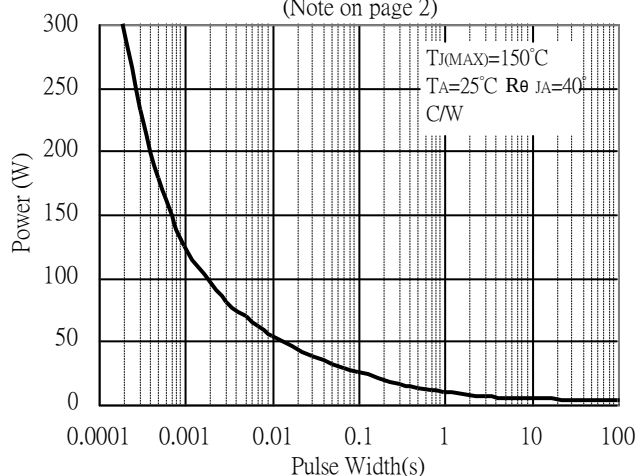


Typical Characteristics(Cont.)

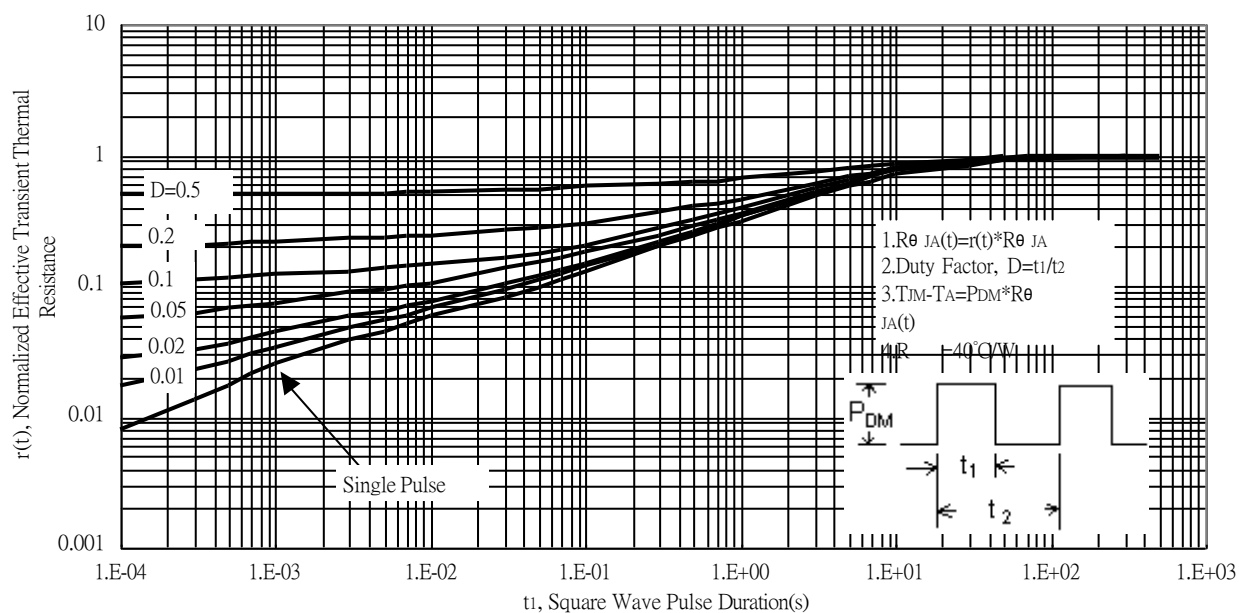
Typical Transfer Characteristics



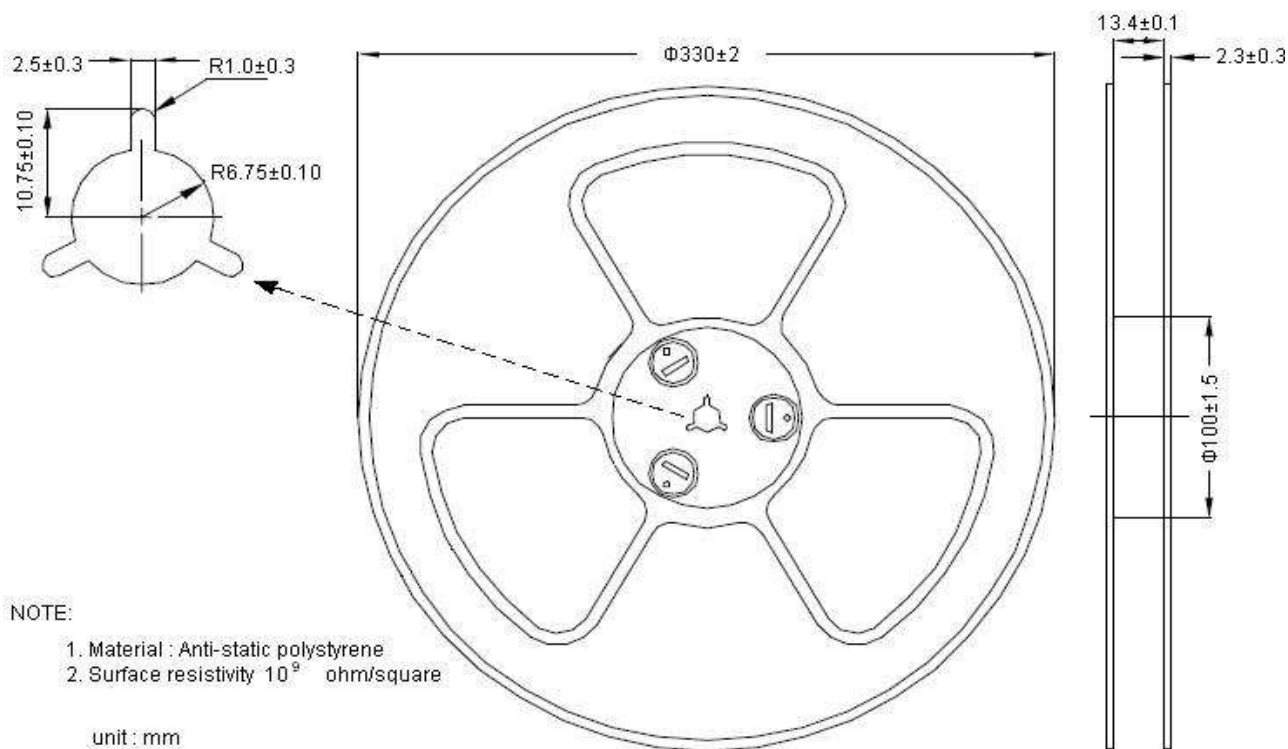
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)



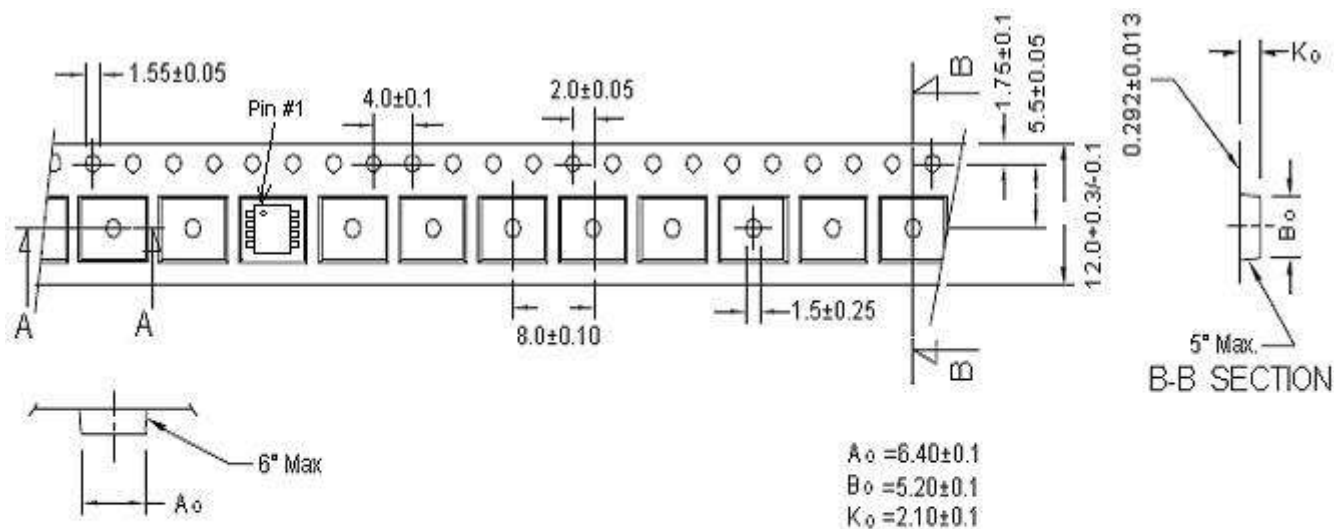
Transient Thermal Response Curves



Reel Dimension



Carrier Tape Dimension



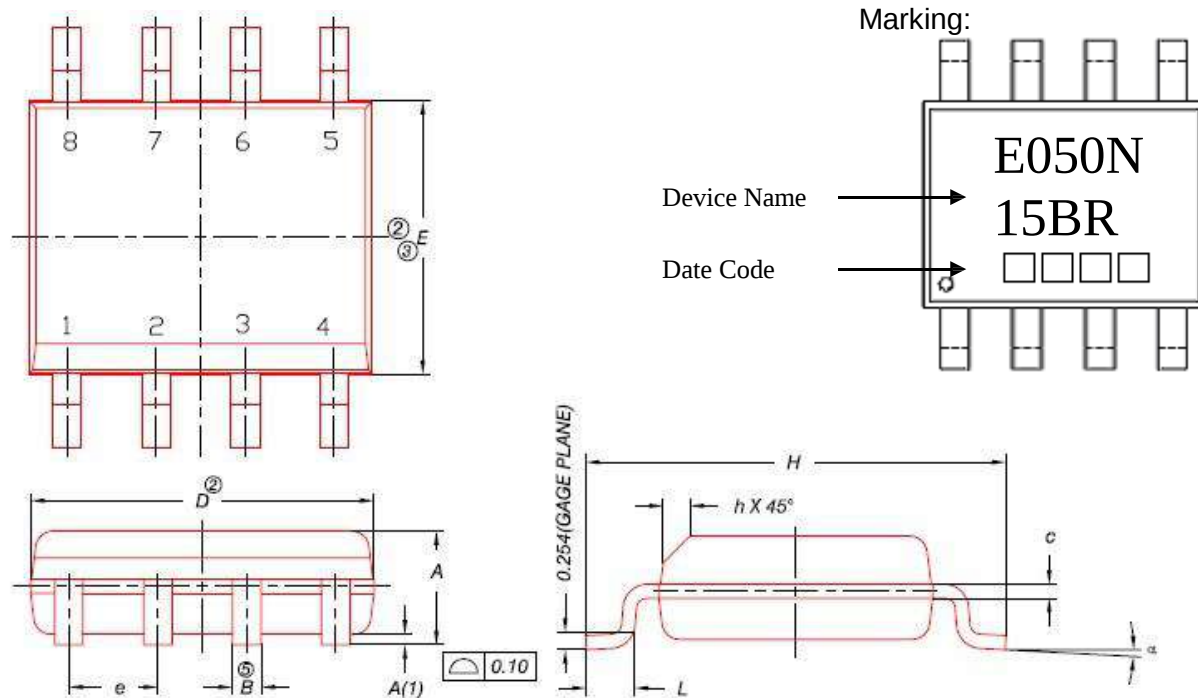
A-A SECTION

Notes:

1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
2. Camber not to exceed 1mm in 100mm.
3. Material: conductive black polystyrene
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Uni : millimeter

SOP-8 Dimension



Note:

1. All Dimension Are In mm.
- ② Package Body Sizes Exclude Mold Flash, Protrusion Or Gate Burrs.
Mold Flash, Protrusion Or Gate Burrs Shall Not Exceed 0.10 mm Per Side.
- ③ Package Body Sizes Determined At The Outermost Extremes Of The Plastic Body Exclusive Of Mold Flash, Tie Bar Burrs, Gate Burrs And Interlead Flash, But Including Any Mismatch Between The Top And Bottom Of The Plastic Body.
4. The Package Top May Be Smaller Than The Package Bottom.
- ⑤ Dimension "B" Does Not Include Dambar Protrusion. Allowable Dambar Protrusion Shall Be 0.08 mm Total In Excess Of "B" Dimension At Maximum Material Condition. The Dambar Cannot Be Located On The Lower Radius Of The Foot.

8-Lead SOP-8 Plastic Package

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069	e	1.270 (BSC)		0.050 (BSC)	
A(1)	0.10	0.25	0.004	0.010	H	5.80	6.20	0.228	0.244
B	0.38	0.51	0.015	0.020	L	0.50	0.93	0.020	0.037
C	0.19	0.25	0.007	0.010	α	0	8°	0	8°
D	4.80	5.00	0.189	0.197	h	0.25	0.50	0.010	0.020
E	3.80	4.00	0.150	0.157					