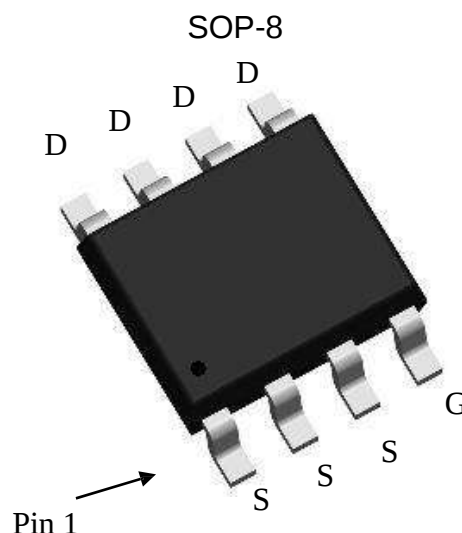


P-Channel Enhancement Mode Power MOSFET

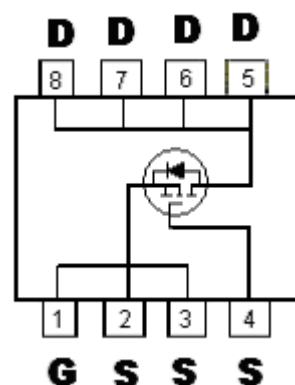
Features :

- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Pb-free lead plating package

BV_{DSS}	-20V
$I_D @ V_{GS} = -4.5V, T_A = 25^\circ C$	-10A
$R_{DS(on)} @ V_{GS} = -4.5V, I_D = -7.6A$	14.2m Ω (typ.)
$R_{DS(on)} @ V_{GS} = -2.5V, I_D = -6A$	18.0m Ω (typ.)



Equivalent Circuit



G : Gate S : Source D : Drain

Ordering Information

Device	Package	Shipping
KSCA025P02	SOP-8 (Pb-free lead plating & halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±8	
Continuous Drain Current @ T _A =25°C, V _{GS} =-4.5V	I _D	-10	A
Continuous Drain Current @ T _A =70°C, V _{GS} =-4.5V		-8	
Pulsed Drain Current	I _{DM}	-50 *1	
Avalanche Current @ L=0.1mH	I _{AS}	-30	
Avalanche Energy @ L=1mH, I _D =-10A, V _{DD} =-15V	E _{AS}	50 *4	mJ
Repetitive Avalanche Energy @ L=0.05mH	E _{AR}	2.5 *2	
Total Power Dissipation	T _A =25°C	3.1 *3	W
	T _A =70°C	2 *3	
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{th,j-c}	20	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{th,j-a}	40 *3	

Note : 1. Pulse width limited by maximum junction temperature
2. Duty cycle ≤ 1%
3. Surface mounted on 1 in² copper pad of FR-4 board, t ≤ 10s ; 125°C/W when mounted on minimum copper pad.
4. 100% tested by conditions of L=0.1mH, I_{AS}=-8A, V_{GS}=-10V, V_{DD}=-15V

Electrical Characteristics (T_j=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-20	-	-	V	V _{GS} =0V, I _D =-250μA
V _{GS(th)}	-0.4	-	-1.2		V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±8V, V _{DS} =0V
I _{DSS}	-	-	-1	μA	V _{DS} =-16V, V _{GS} =0V
I _{DSS}	-	-	-10		V _{DS} =-16V, V _{GS} =0V, T _j =125°C
R _{DS(ON)} *1	-	14.2	20	mΩ	V _{GS} =-4.5V, I _D =-7.6A
	-	18.0	30		V _{GS} =-2.5V, I _D =-6A
G _{FS} *1	-	26.5	-	S	V _{DS} =-5V, I _D =-10A
Dynamic					
C _{iss}	-	2453	-	pF	V _{DS} =-10V, V _{GS} =0V, f=1MHz
C _{oss}	-	219	-		
C _{rss}	-	165	-		

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

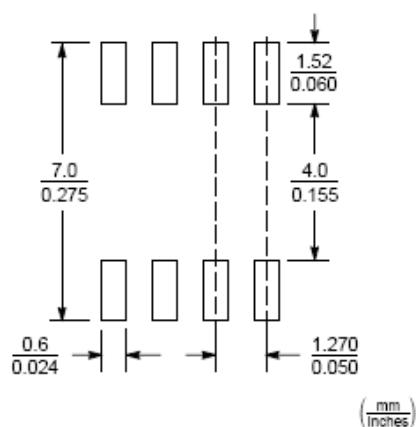
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
t _{d(ON)} *1, 2	-	12.6	25	ns	V _{DD} =-10V, I _D =-7.6A, V _{GS} =-4.5V, R _G =6Ω
t _r *1, 2	-	11	22		
t _{d(OFF)} *1, 2	-	113.4	170		
t _f *1, 2	-	145.8	220		
Q _g *1, 2	-	24.9	35	nC	V _{DS} =-10V, I _D =-7.6A, V _{GS} =-4.5V
Q _{gs} *1, 2	-	3.5	-		
Q _{gd} *1, 2	-	5.4	-		
R _g	-	18	-	Ω	f=1MHz
Source-Drain Diode					
I _S *1	-	-	-4	A	
I _{SM} *3	-	-	-16		
V _{SD} *1	-	-0.75	-1.2	V	I _S =-2A, V _{GS} =0V
t _{rr}	-	53.8	-	ns	I _F =-2A, dI _F /dt=100A/μs
Q _{rr}	-	34.8	-	nC	

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

*2.Independent of operating temperature

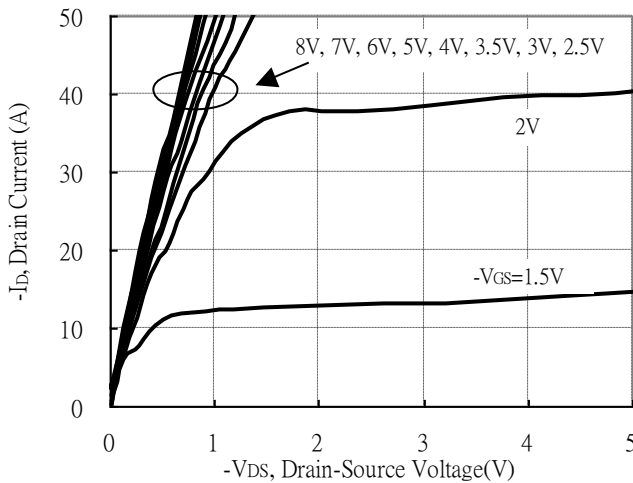
*3.Pulse width limited by maximum junction temperature.

Recommended Soldering Footprint

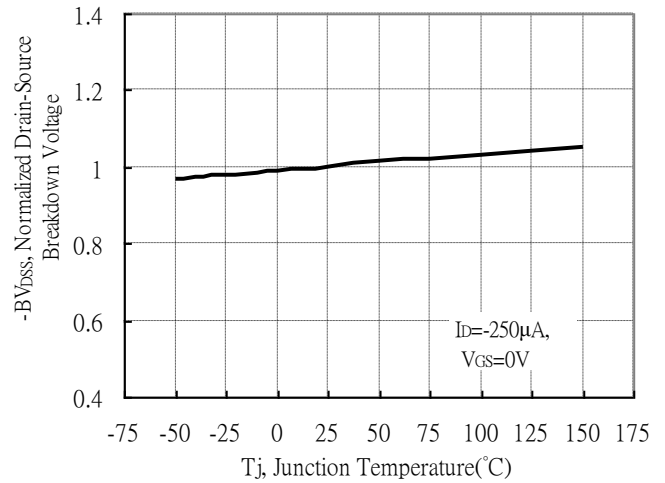


Typical Characteristics

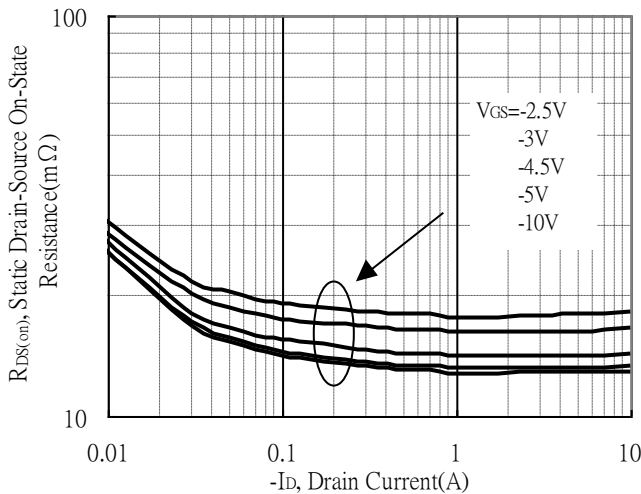
Typical Output Characteristics



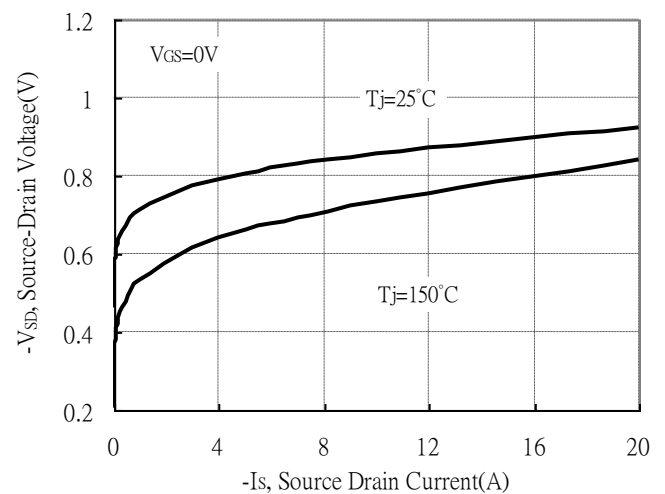
Breakdown Voltage vs Ambient Temperature



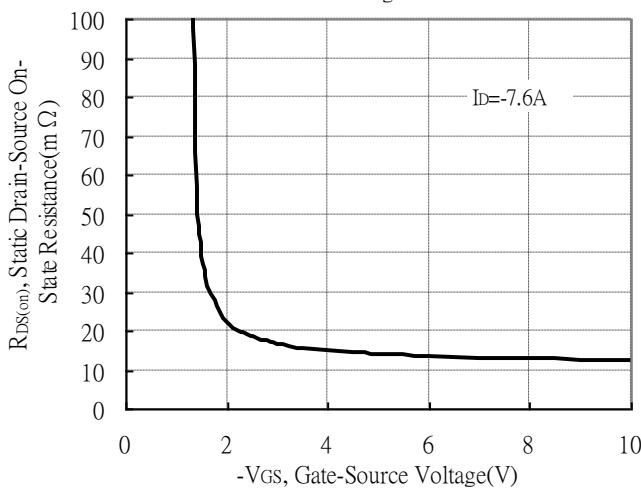
Static Drain-Source On-State resistance vs Drain Current



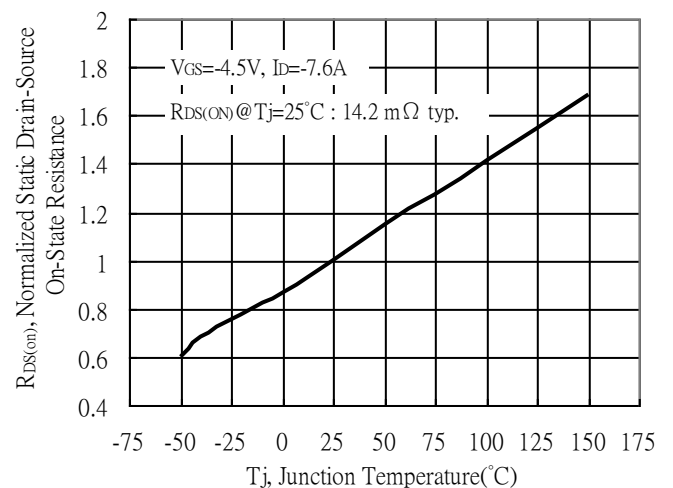
Source Drain Current vs Source-Drain Voltage



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

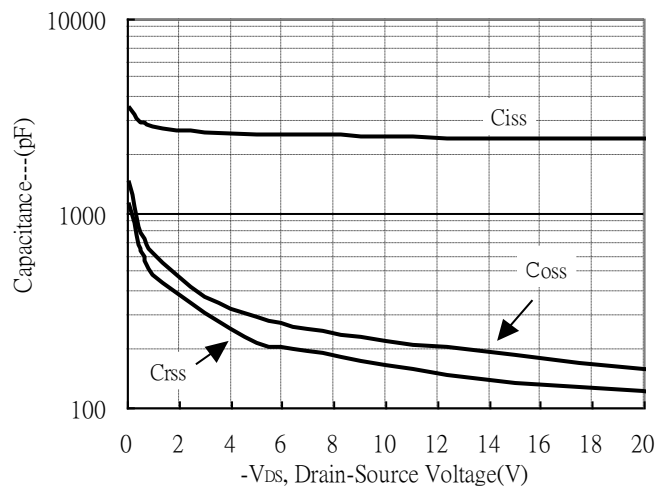


Drain-Source On-State Resistance vs Junction Temperature

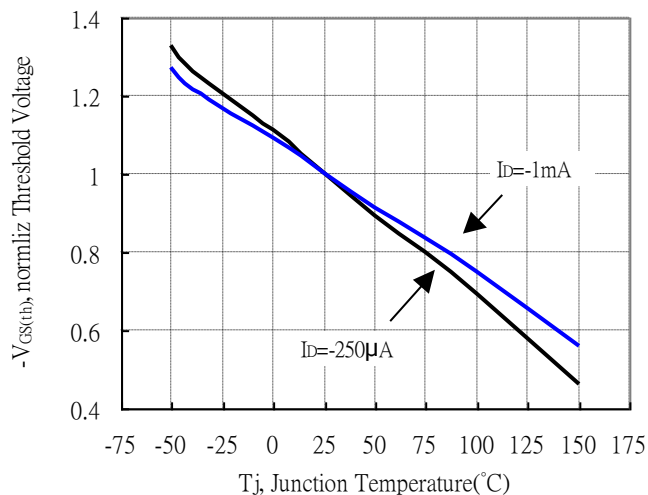


Typical Characteristics(Cont.)

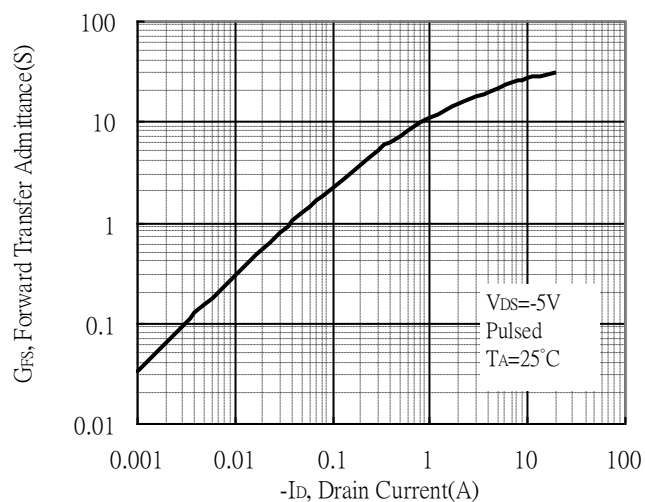
Capacitance vs Drain-to-Source Voltage



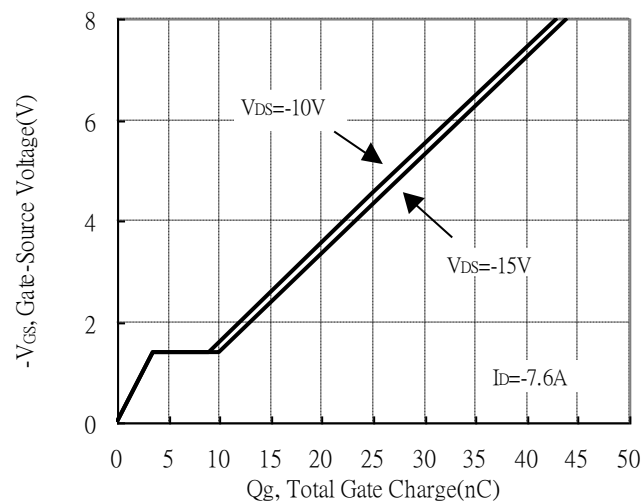
Threshold Voltage vs Junction Temperature



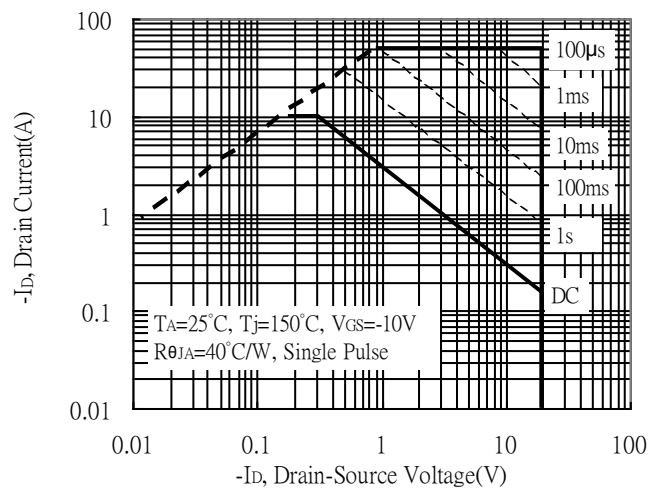
Forward Transfer Admittance vs Drain Current



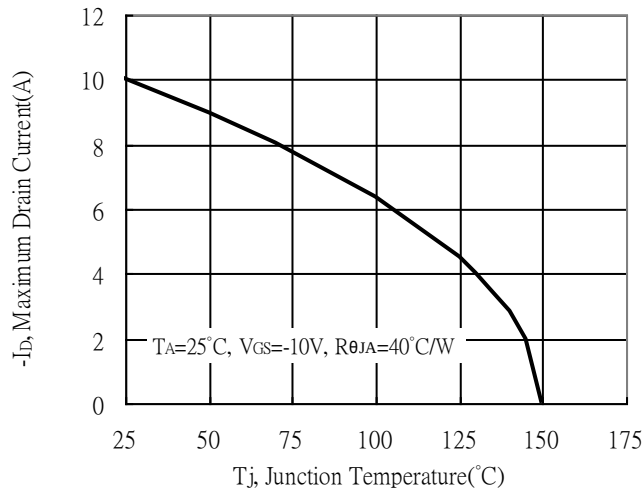
Gate Charge Characteristics



Maximum Safe Operating Area

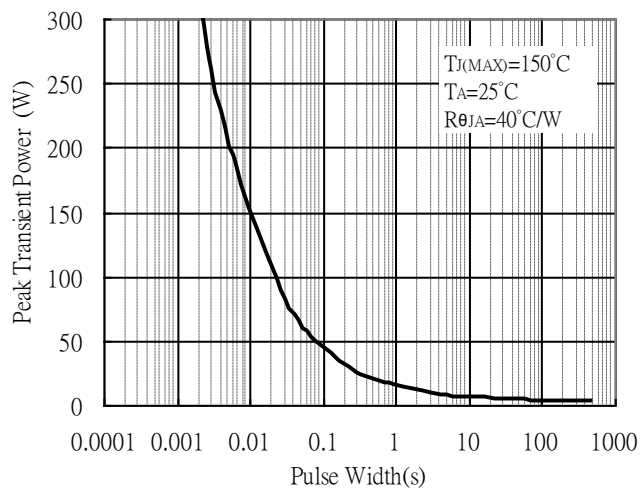


Maximum Drain Current vs Junction Temperature

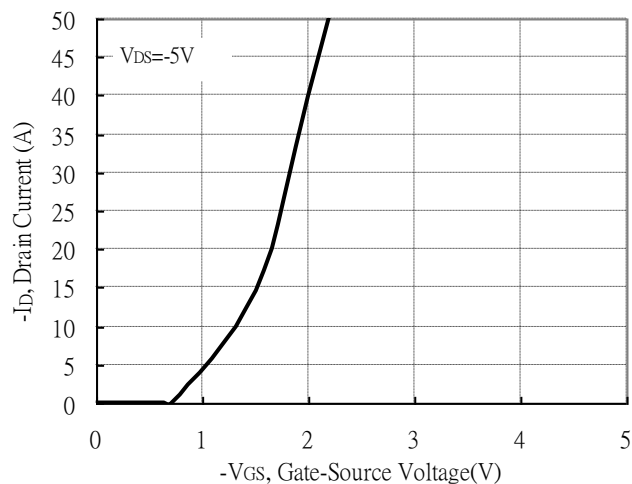


Typical Characteristics(Cont.)

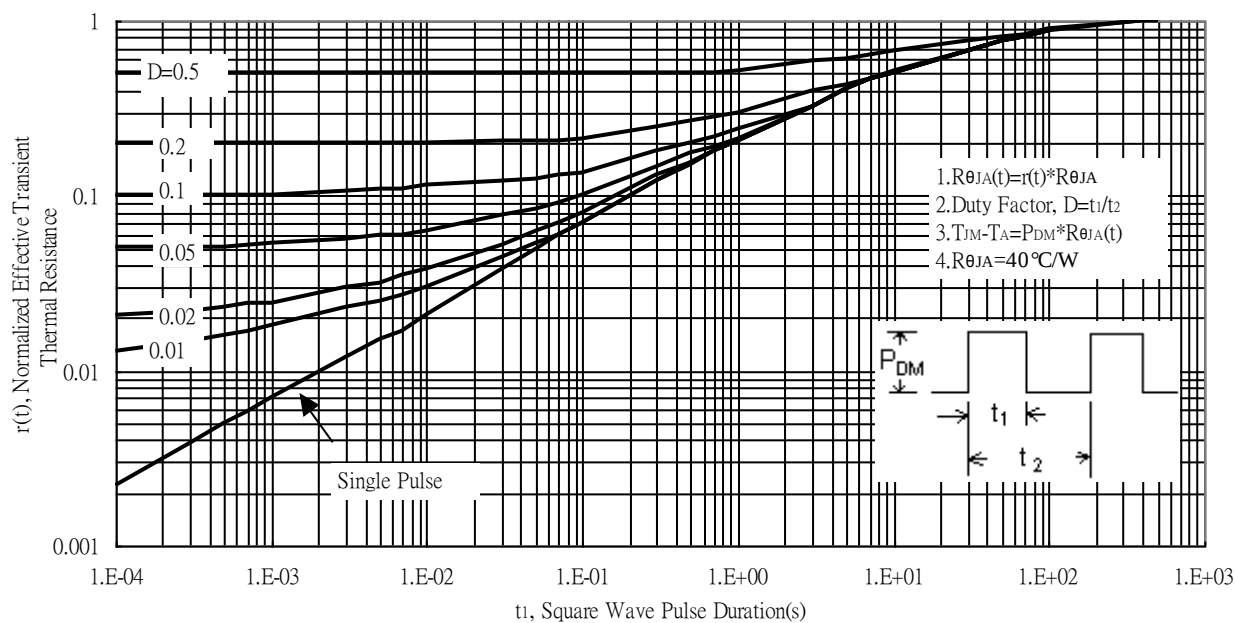
Single Pulse Maximum Power Dissipation



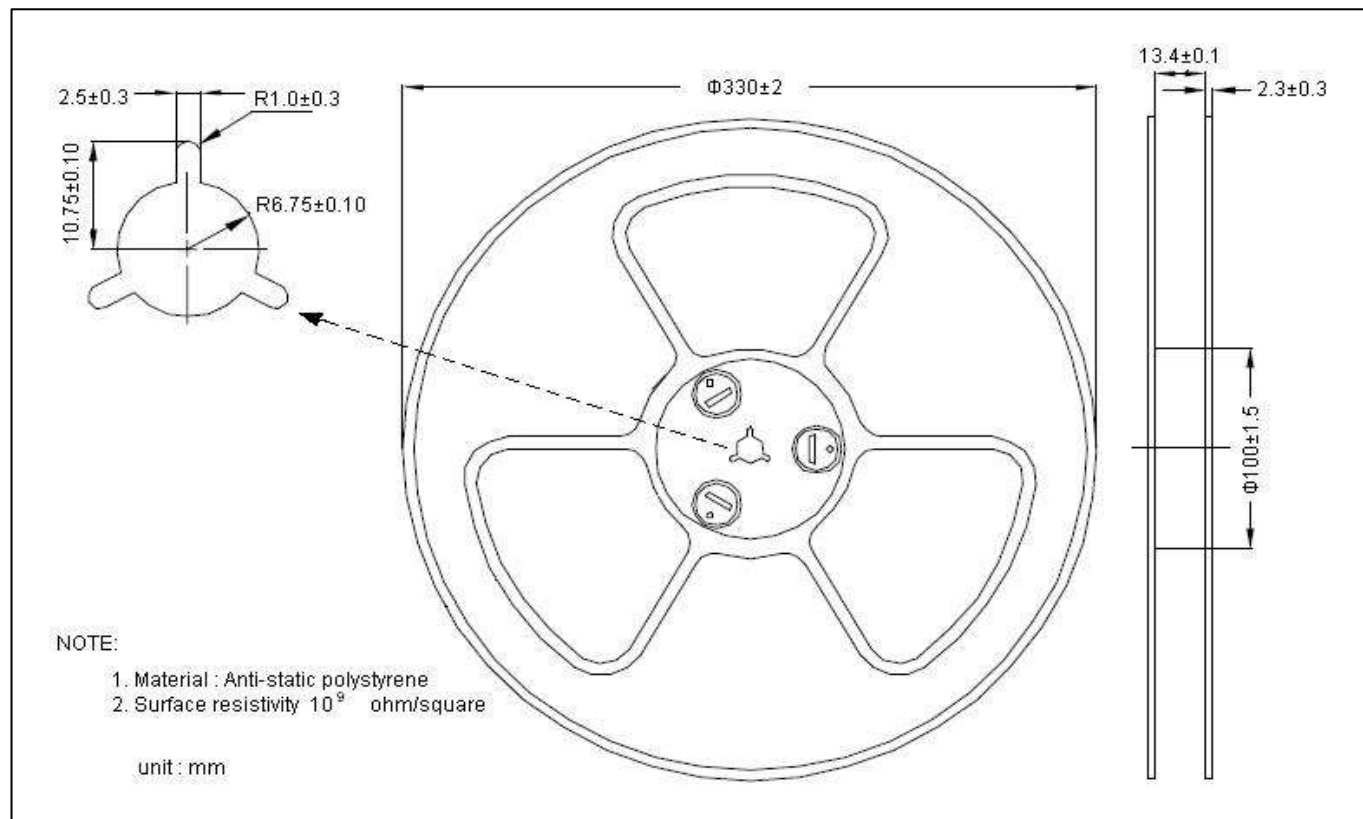
Typical Transfer Characteristics



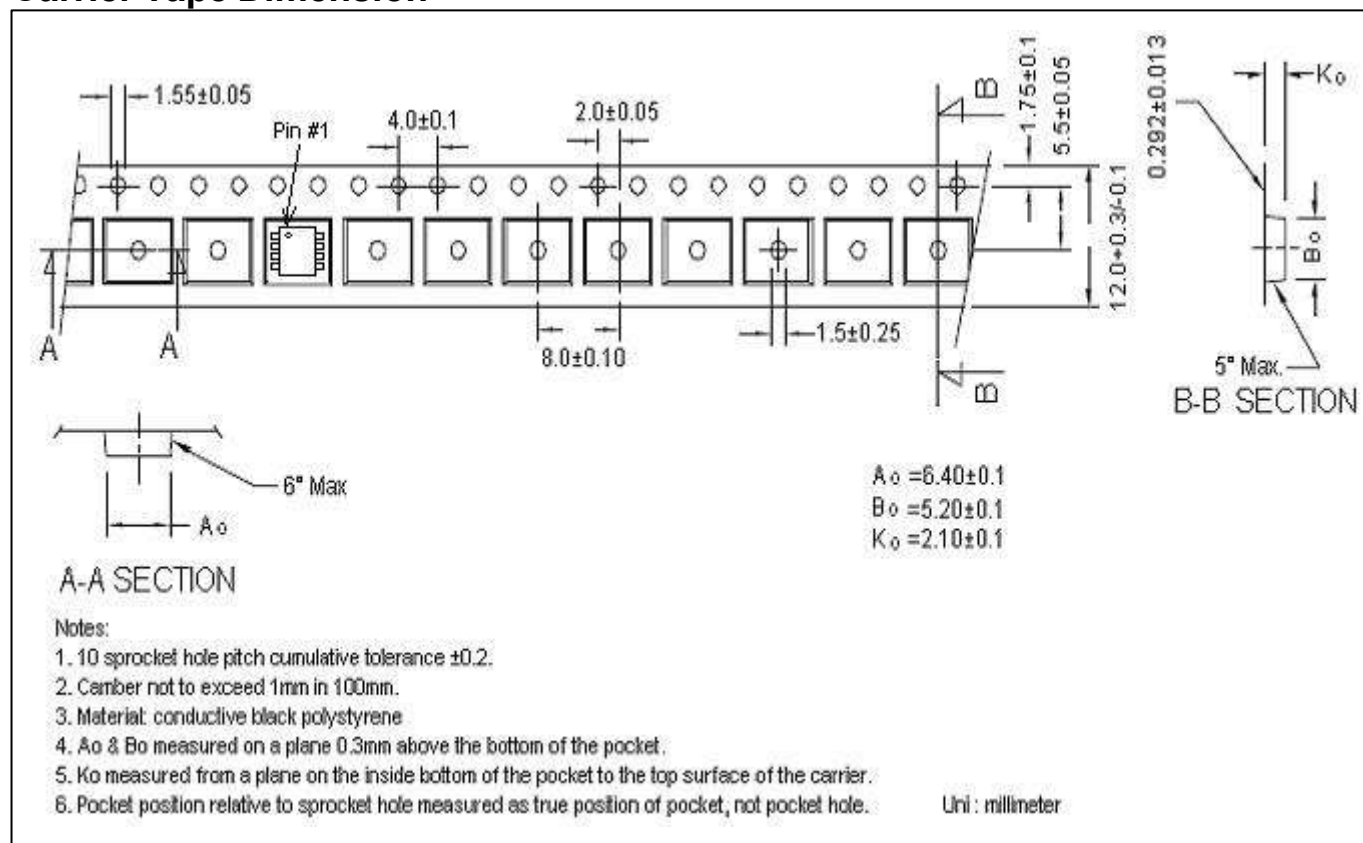
Transient Thermal Response Curves



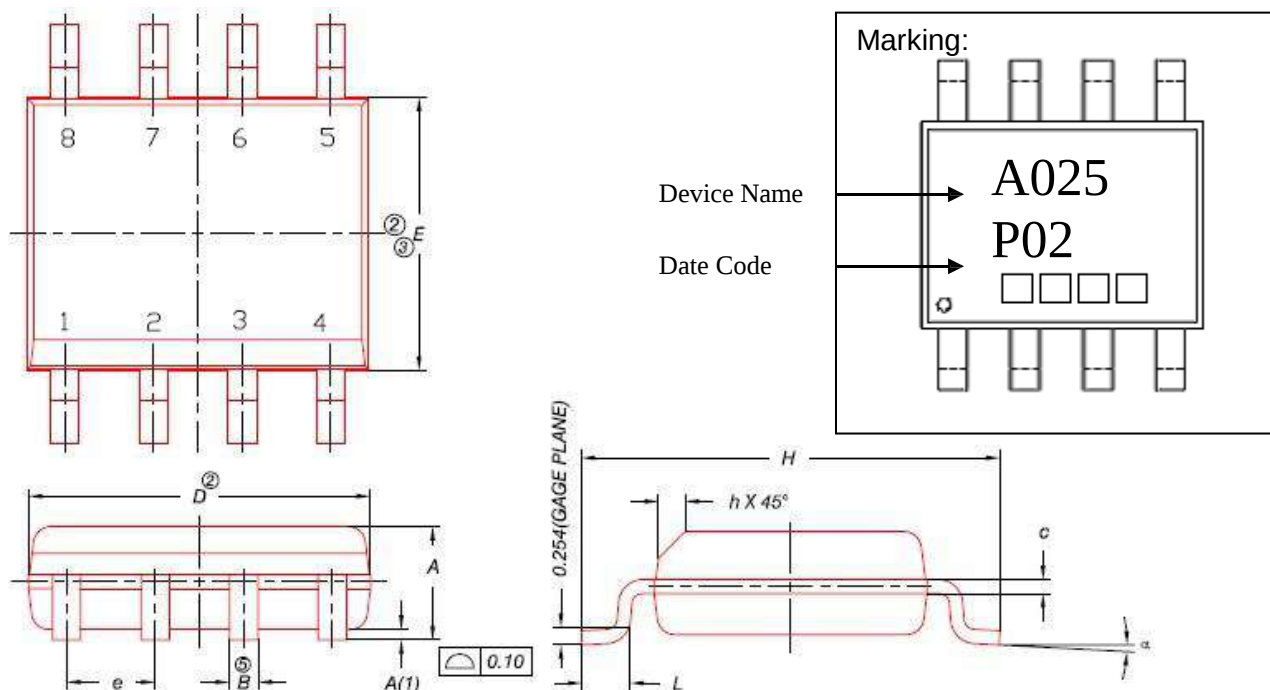
Reel Dimension



Carrier Tape Dimension



SOP-8 Dimension



Note:

1. All Dimension Are In mm.
- ② Package Body Sizes Exclude Mold Flash, Protrusion Or Gate Burrs.
- ③ Mold Flash, Protrusion Or Gate Burrs Shall Not Exceed 0.10mm Per Side.
- ④ 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					