

Dual P-Channel Enhancement Mode Power MOSFET

Description:

The KSS4953 is a P-channel enhancement-mode MOSFET, providing the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost effectiveness. The SOP-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Features:

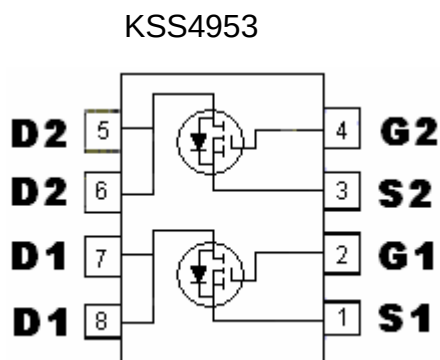
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Pb-free lead plating package

BVDSS	-30V
ID	-5.3A
RDSON@VGS=-10V, ID=-5A	50mΩ (typ)
RDSON@VGS=-4.5V, ID=-4A	75mΩ (typ)

Applications:

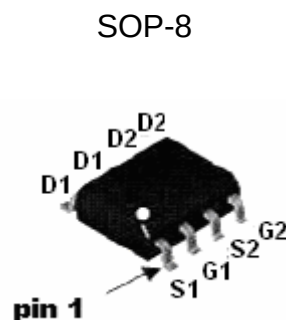
- Power management in notebook computer, portable equipment and battery powered systems.

Equivalent Circuit



G : Gate S : Source D : Drain

Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	-30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current @T _A =25 °C (Note 1)	I _D	-5.3	A
Continuous Drain Current @T _A =70 °C (Note 1)	I _D	-4.2	A
Pulsed Drain Current (Note 2)	I _{DM}	-20	A
Total Power Dissipation (Note 1)	P _d	2	W
Linear Derating Factor		0.02	W / °C
Operating Junction and Storage Temperature Range	T _j ; T _{stg}	-55~+150	°C
Thermal Resistance, Junction-to-Ambient (Note 1)	R _{th,ja}	62.5	°C/W

Note : 1.Surface mounted on 1 in² copper pad of FR-4 board, t≤10s.

2.Pulse width ≤300μs, duty cycle≤2%

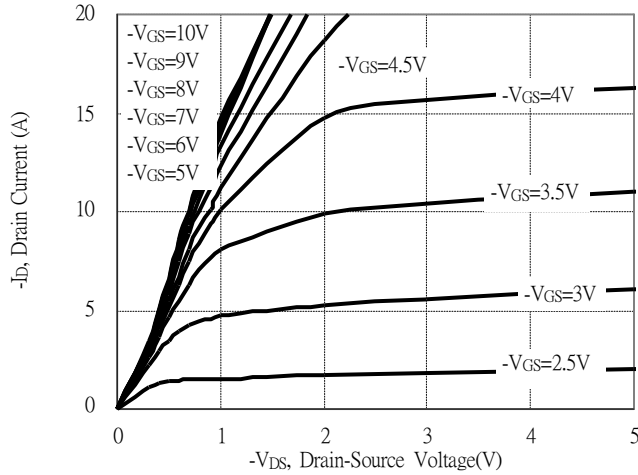
Electrical Characteristics (T_j=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-30	-	-	V	V _{GS} =0, I _D =-250μA
V _{GS(th)}	-1	-1.5	-2.5	V	V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0
I _{DSS}	-	-	-1	μA	V _{DS} =-24V, V _{GS} =0
*R _{DS(ON)}	-	50	60	mΩ	I _D =-5A, V _{GS} =-10V
	-	75	90		I _D =-4A, V _{GS} =-4.5V
*G _{FS}	-	7	-	S	V _{DS} =-5V, I _D =-5A
Dynamic					
C _{iss}	-	647	-	pF	V _{DS} =-15V, V _{GS} =0, f=1MHz
C _{oss}	-	68	-		
C _{rss}	-	59	-		
*t _{d(ON)}	-	7	-	ns	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V, R _G =3.3Ω
*t _r	-	3	-		
*t _{d(OFF)}	-	20	-		
*t _f	-	15	-		
*Q _g	-	11	-	nC	V _{DS} =-15V, I _D =-5.3A, V _{GS} =-10V
*Q _{gs}	-	2.3	-		
*Q _{gd}	-	4.3	-		
Source-Drain Diode					
*V _{SD}	-	-0.84	-1.2	V	V _{GS} =0V, I _S =-1.7A

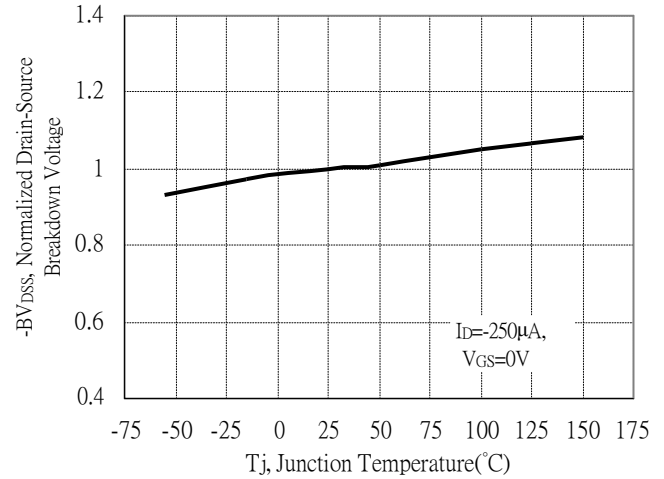
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

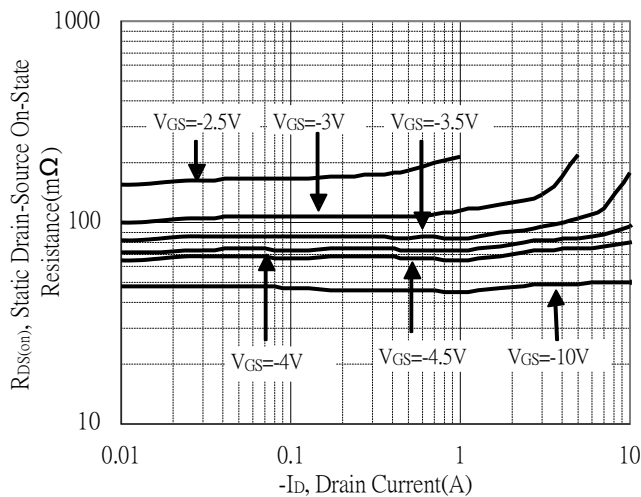
Typical Output Characteristics



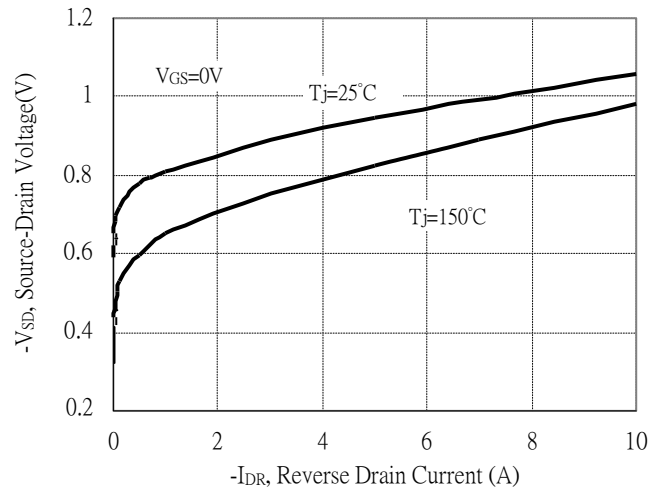
Breakdown Voltage vs Ambient Temperature



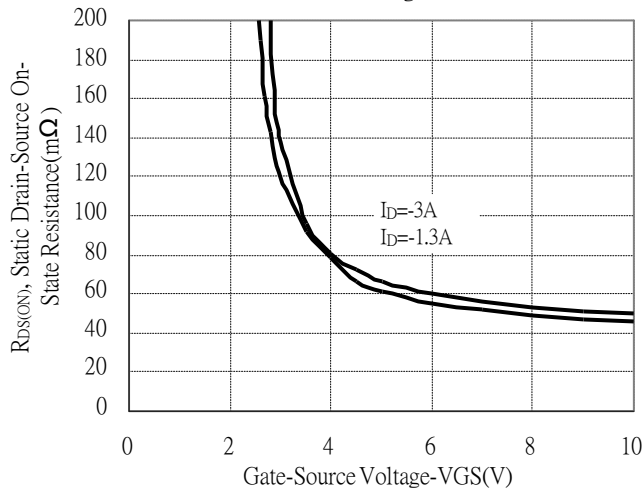
Static Drain-Source On-State resistance vs Drain Current



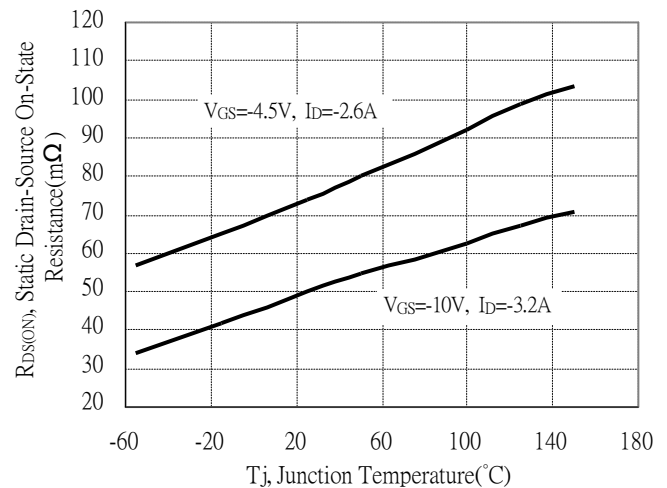
Reverse Drain Current vs Source-Drain Voltage



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

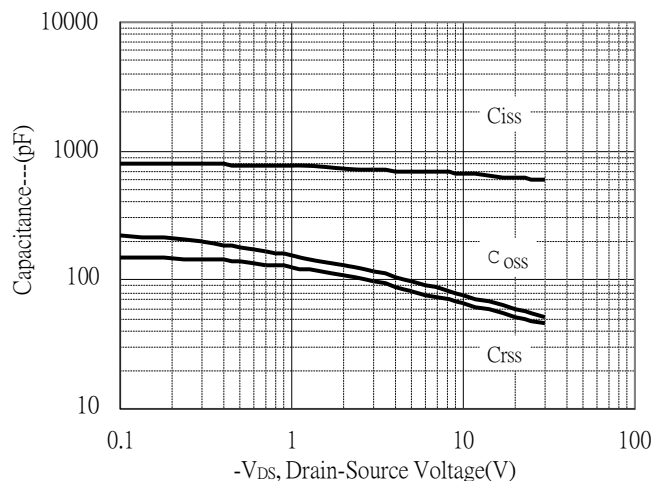


Drain-Source On-State Resistance vs Junction Temperature

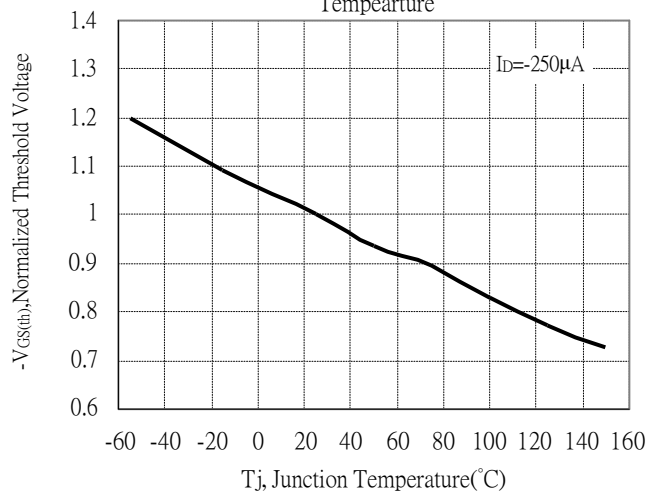


Typical Characteristics (Cont.)

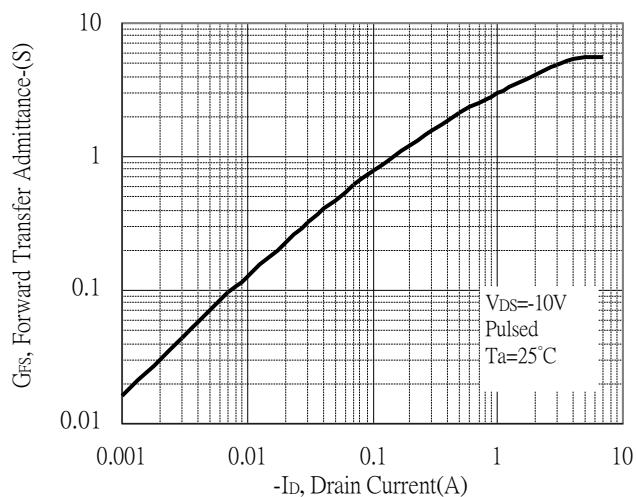
Capacitance vs Drain-to-Source Voltage



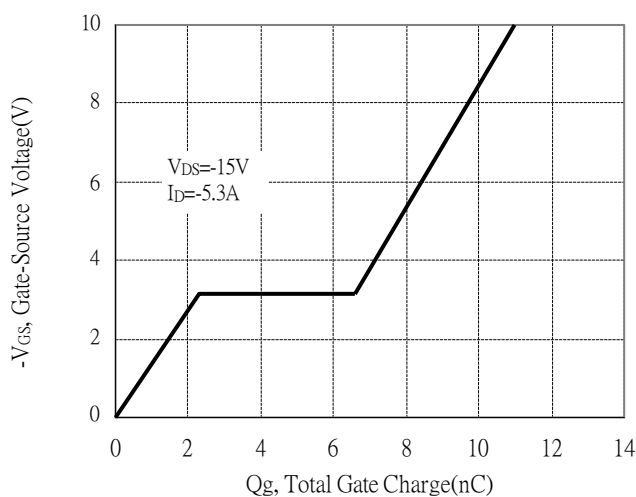
Normalized Threshold Voltage vs Junction Temperature



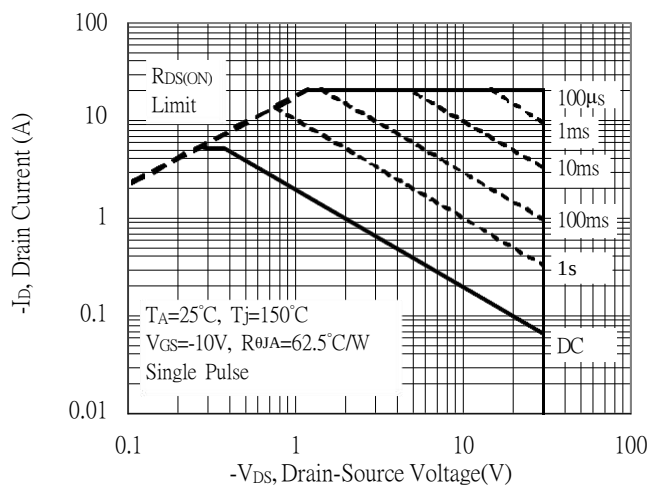
Forward Transfer Admittance vs Drain Current



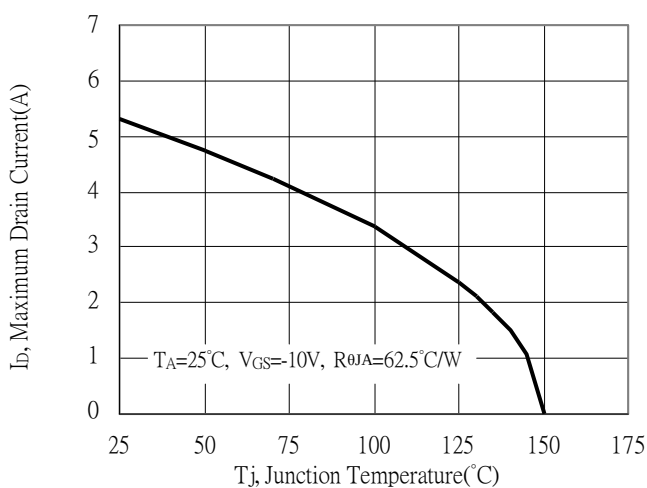
Gate Charge Characteristics



Maximum Safe Operating Area

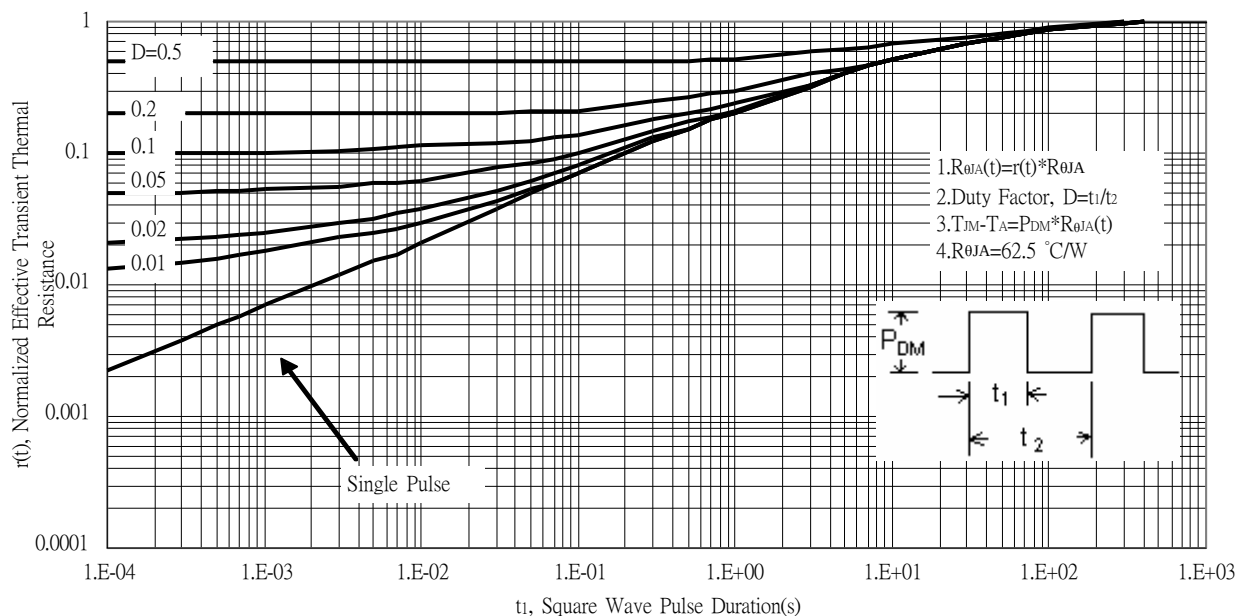


Maximum Drain Current vs Junction Temperature



Typical Characteristics (Cont.)

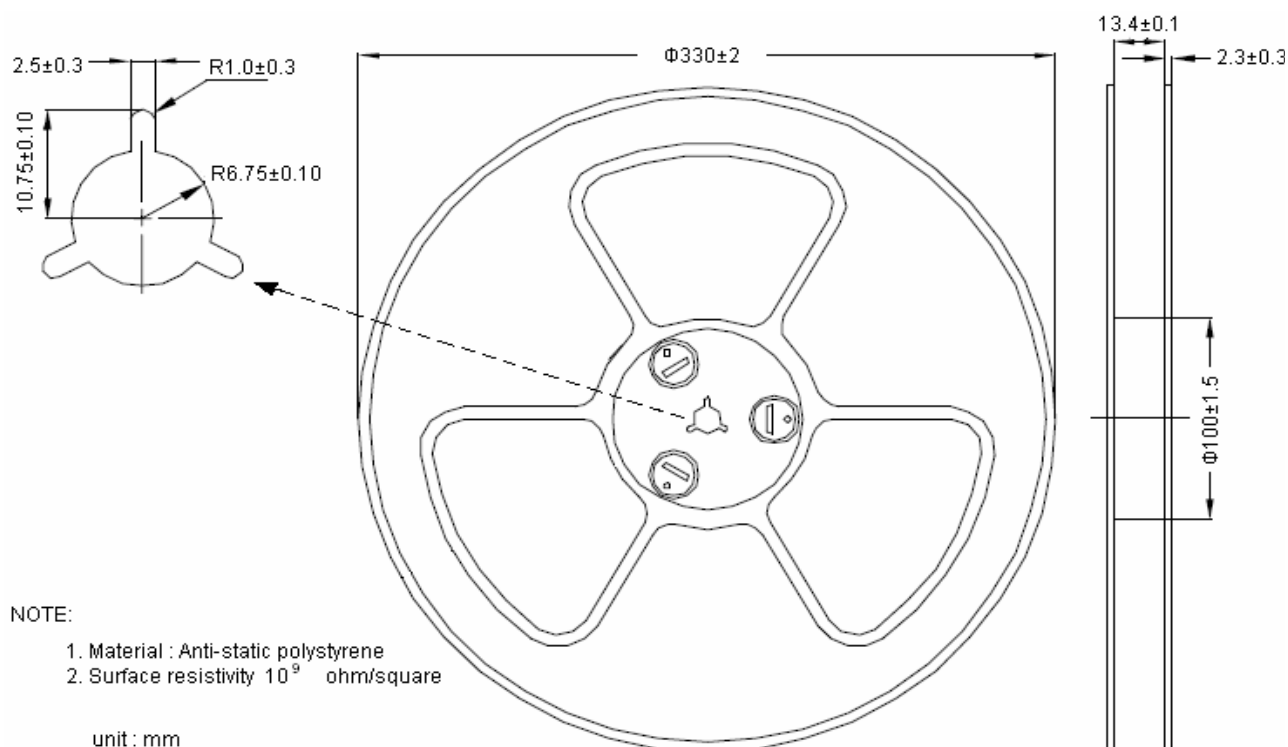
Transient Thermal Response Curves



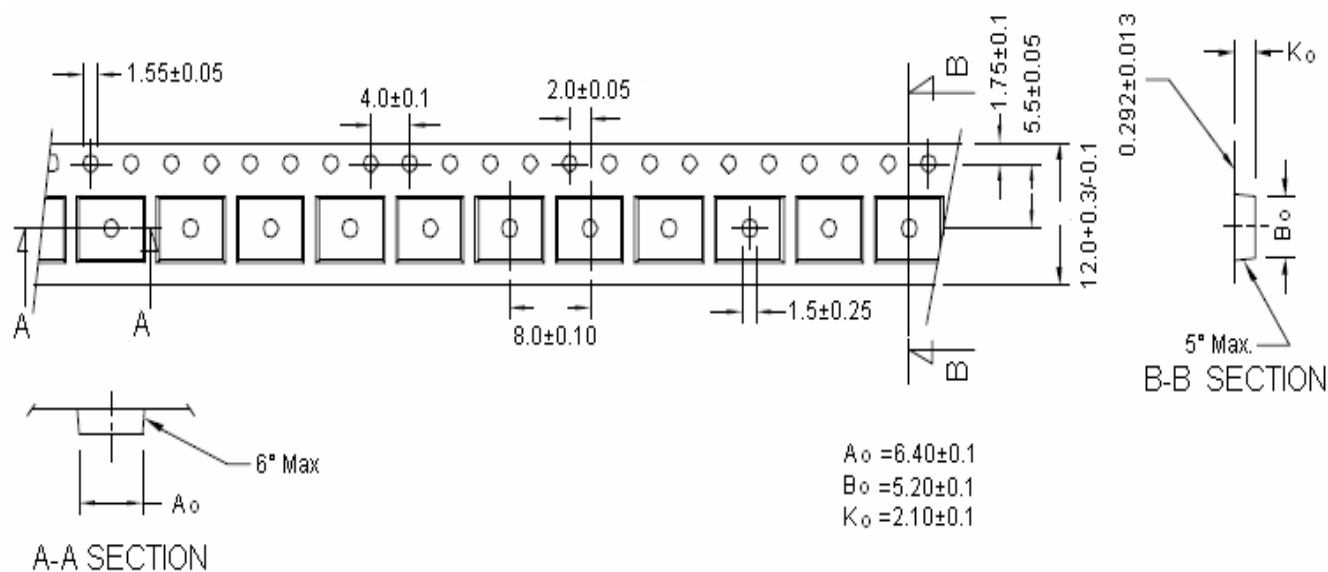
Ordering Information

Device	Package	Shipping
KSS4953	SOP-8 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

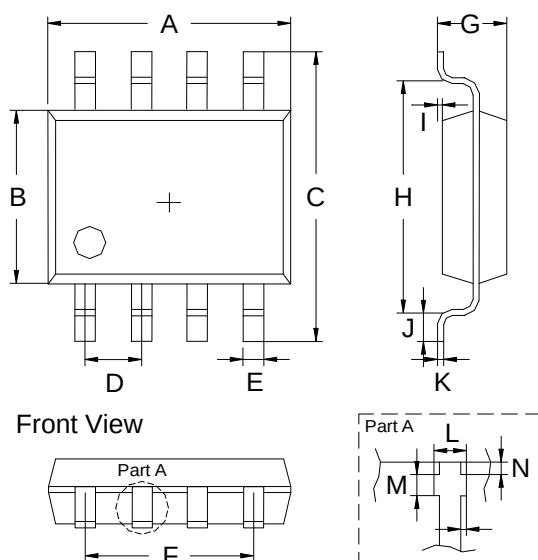
Reel Dimension



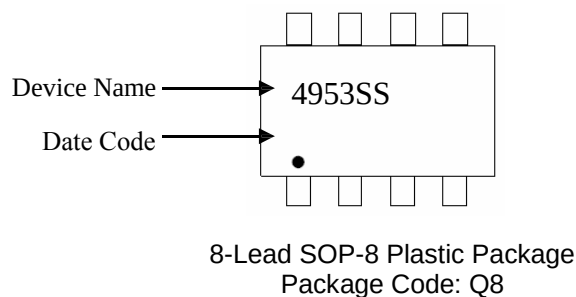
Carrier Tape Dimension



SOP-8 Dimension



Marking:



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1890	0.2007	4.80	5.10	I	0.0098	REF	0.25	REF
B	0.1496	0.1654	3.80	4.20	J	0.0118	0.0354	0.30	0.90
C	0.2283	0.2441	5.80	6.20	K	0.0074	0.0098	0.19	0.25
D	0.0480	0.0519	1.22	1.32	L	0.0145	0.0204	0.37	0.52
E	0.0138	0.0193	0.35	0.49	M	0.0118	0.0197	0.30	0.50
F	0.1472	0.1527	3.74	3.88	N	0.0031	0.0051	0.08	0.13
G	0.0531	0.0689	1.35	1.75	O	0.0000	0.0059	0.00	0.15
H	0.1889	0.2007	4.80	5.10					