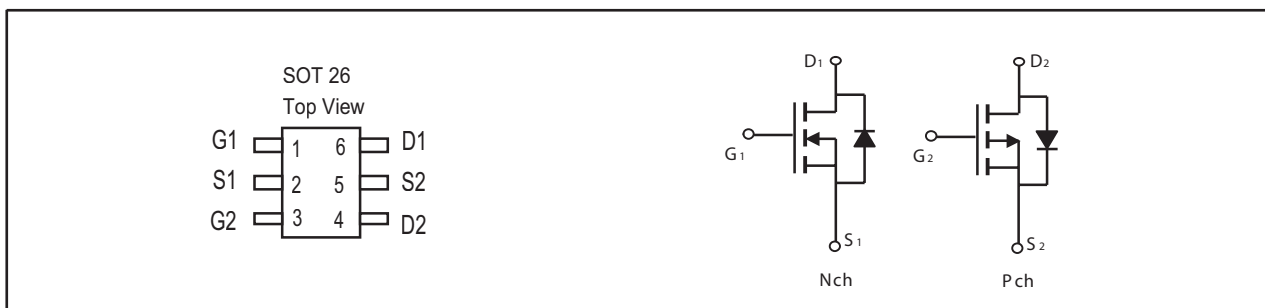


**Dual Enhancement Mode Field Effect Transistor (N and P Channel)**

PRODUCT SUMMARY (N-Channel)		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
20V	2.5A	53 @ V _{GS} =4.5V
		78 @ V _{GS} =2.5V

PRODUCT SUMMARY (P-Channel)		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
-20V	-2A	103 @ V _{GS} =-4.5V
		190 @ V _{GS} =-2.5V

**ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)**

Symbol	Parameter	N-Channel	P-Channel	Units	
V _{DS}	Drain-Source Voltage	20	-20	V	
V _{GS}	Gate-Source Voltage	±10	±10	V	
I _D	Drain Current-Continuous ^a	T _C =25°C	2.5	-2	A
		T _C =70°C	2	-1.6	A
I _{DM}	-Pulsed ^b	8	-7	A	
P _D	Maximum Power Dissipation ^a	T _C =25°C	1	W	
		T _C =70°C	0.64	W	
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150		°C	

THERMAL CHARACTERISTICS

R _{θJA}	Thermal Resistance, Junction-to-Ambient ^a	125	°C/W
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STS2620

Ver1.2

N-Channel ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±10V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.5	0.8	1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =2.5A		42	53	m ohm
		V _{GS} =2.5V, I _D =2A		58	78	m ohm
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =2.5A		7		S
DYNAMIC CHARACTERISTICS [°]						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V f=1.0MHz		232		pF
C _{OSS}	Output Capacitance			82		pF
C _{RSS}	Reverse Transfer Capacitance			66		pF
SWITCHING CHARACTERISTICS [°]						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =10V I _D =1A V _{GS} =4.5V R _{GEN} =6 ohm		9.4		ns
t _r	Rise Time			13.6		ns
t _{D(OFF)}	Turn-Off Delay Time			15.7		ns
t _f	Fall Time			9.8		ns
Q _g	Total Gate Charge	V _{DS} =10V, I _D =2.5A, V _{GS} =4.5V		5.6		nC
Q _{gs}	Gate-Source Charge			1.2		nC
Q _{gd}	Gate-Drain Charge			2.4		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A		0.8	1.2	V

Oct,22,2010

STS2620

Ver1.2

P-Channel ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V			1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±10V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-0.9	-1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-2A		82	103	m ohm
		V _{GS} =-2.5V, I _D =-1A		140	190	m ohm
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-2A		6.3		S
DYNAMIC CHARACTERISTICS ^c						
C _{ISS}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V f=1.0MHz		172		pF
C _{OSS}	Output Capacitance			82		pF
C _{RSS}	Reverse Transfer Capacitance			37		pF
SWITCHING CHARACTERISTICS ^c						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =-10V I _D =-1A V _{GS} =-4.5V R _{GEN} =6 ohm		41		ns
t _r	Rise Time			151		ns
t _{D(OFF)}	Turn-Off Delay Time			384		ns
t _f	Fall Time			320		ns
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-2A, V _{GS} =-4.5V		3.4		nC
Q _{gs}	Gate-Source Charge			0.4		nC
Q _{gd}	Gate-Drain Charge			1.6		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A		-0.8	-1.2	V

Notes

- Surface Mounted on FR4 Board, t ≤ 10sec.
- Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

Oct,22,2010

N-Channel

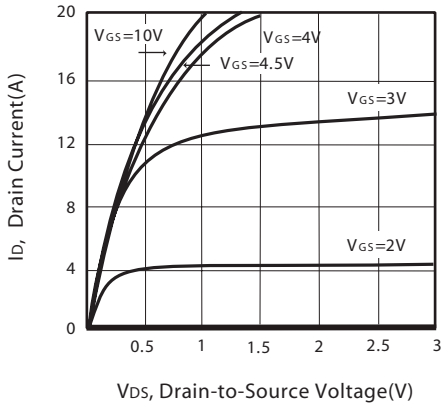


Figure 1. Output Characteristics

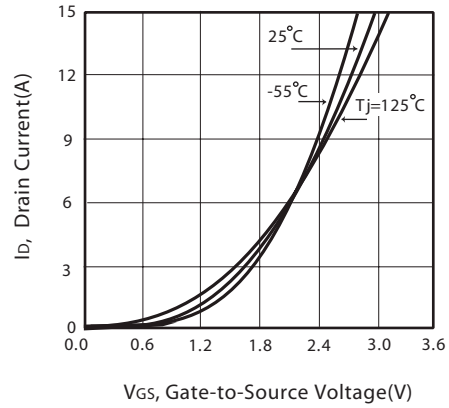


Figure 2. Transfer Characteristics

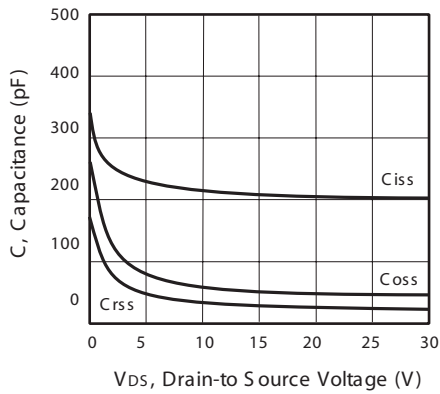


Figure 3. Capacitance

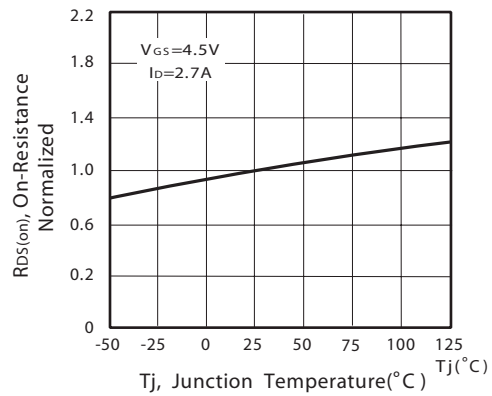


Figure 4. On-Resistance Variation with Temperature

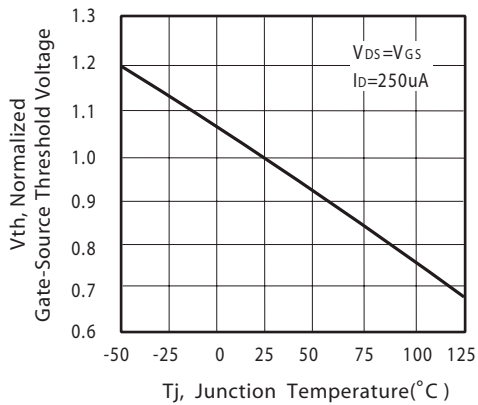


Figure 5. Gate Threshold Variation with Temperature

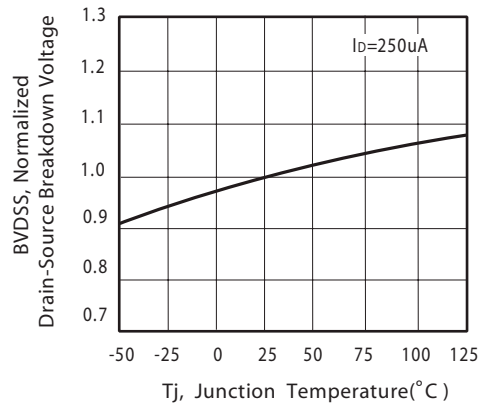


Figure 6. Breakdown Voltage Variation with Temperature

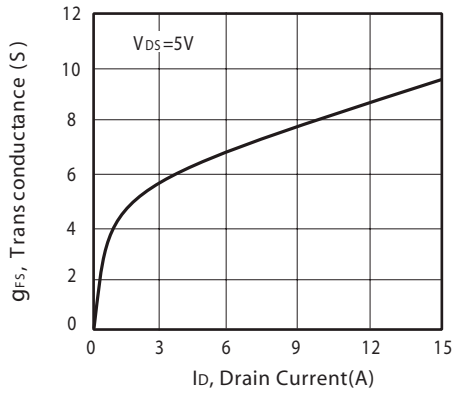


Figure 7. Transconductance Variation with Drain Current

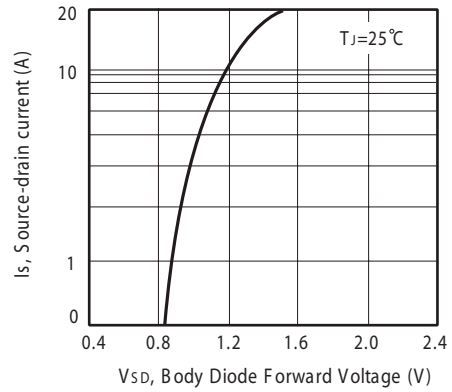


Figure 8. Body Diode Forward Voltage Variation with Source Current

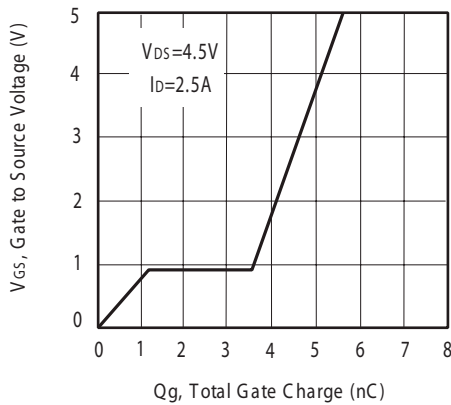


Figure 9. Gate Charge

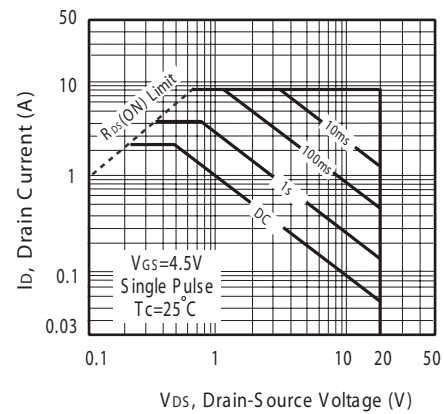
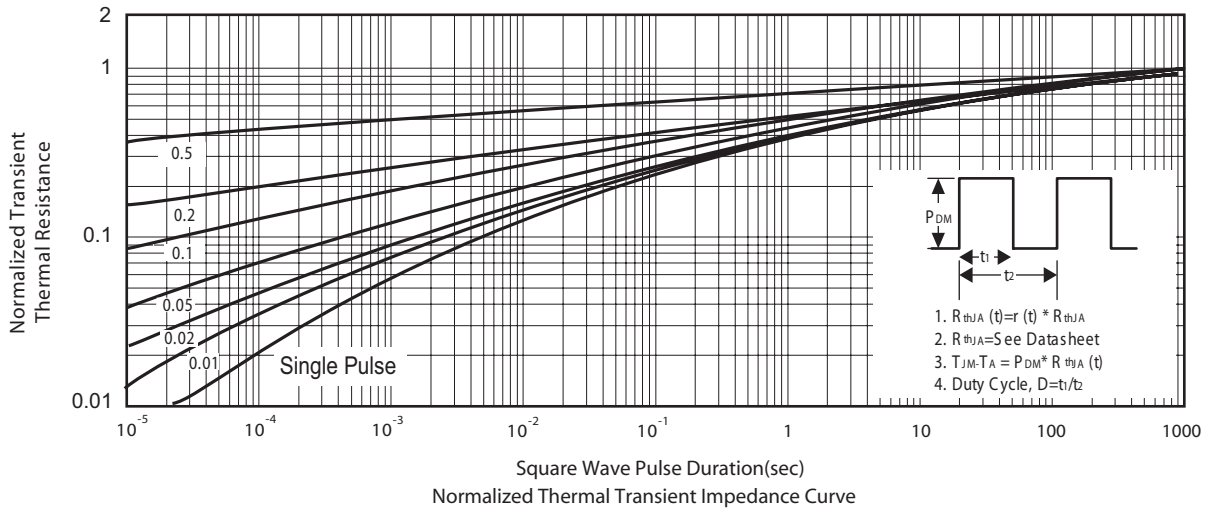


Figure 10. Maximum Safe Operating Area



P-Channel

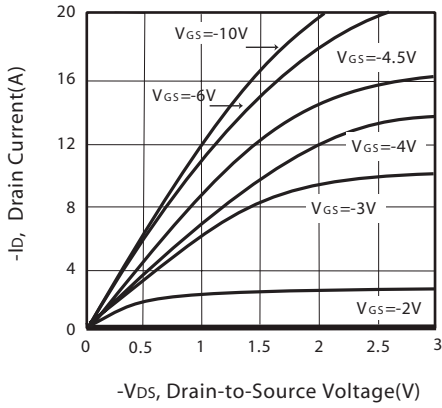


Figure 1. Output Characteristics

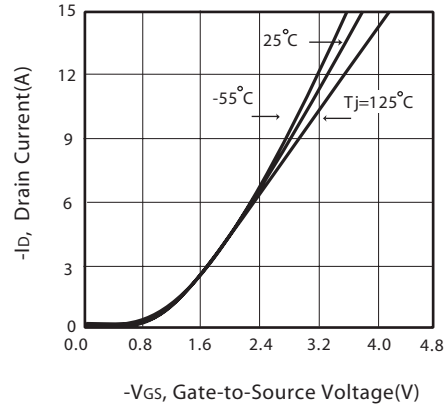


Figure 2. Transfer Characteristics

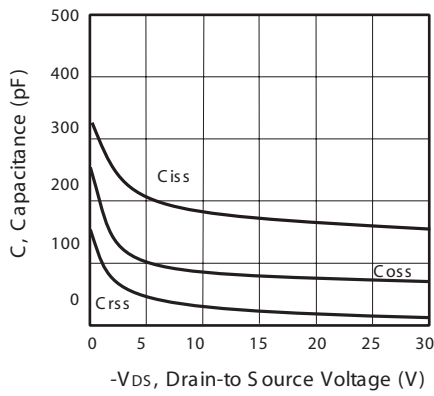


Figure 3. Capacitance

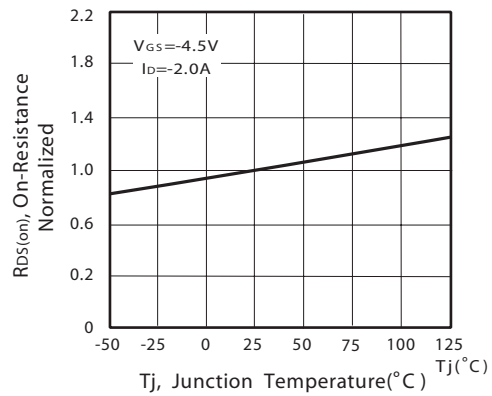


Figure 4. On-Resistance Variation with Temperature

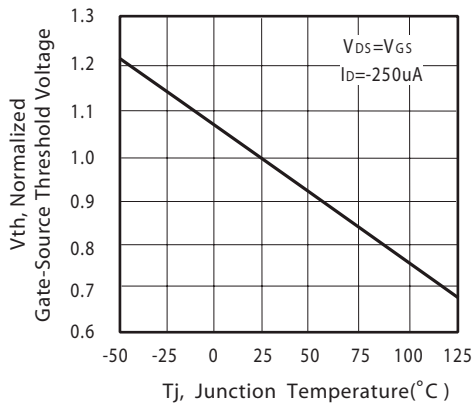


Figure 5. Gate Threshold Variation with Temperature

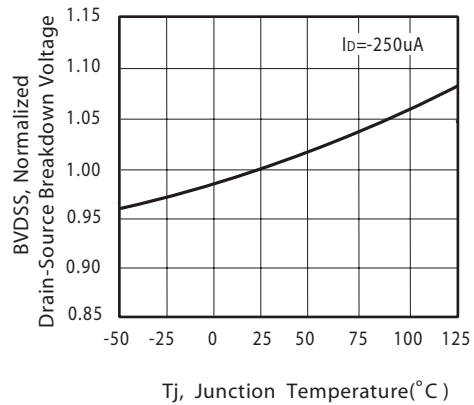


Figure 6. Breakdown Voltage Variation with Temperature

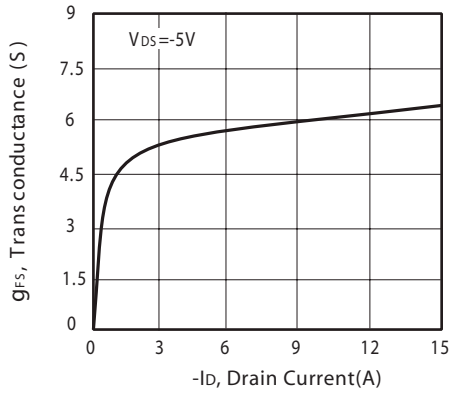


Figure 7. Transconductance Variation with Drain Current

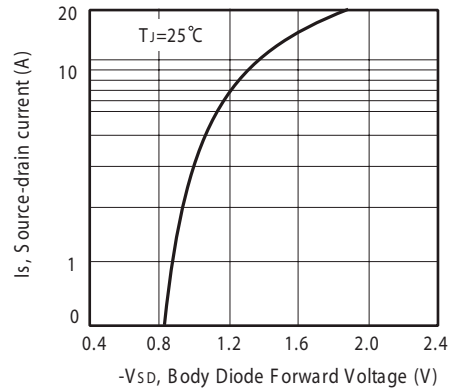


Figure 8. Body Diode Forward Voltage Variation with Source Current

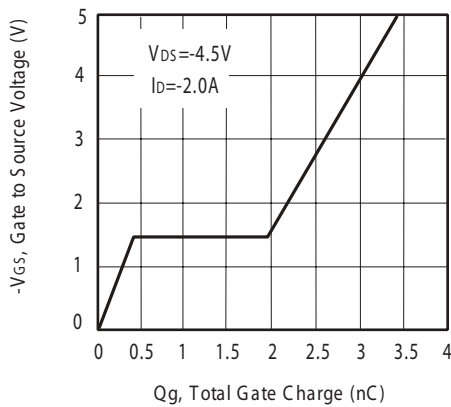


Figure 9. Gate Charge

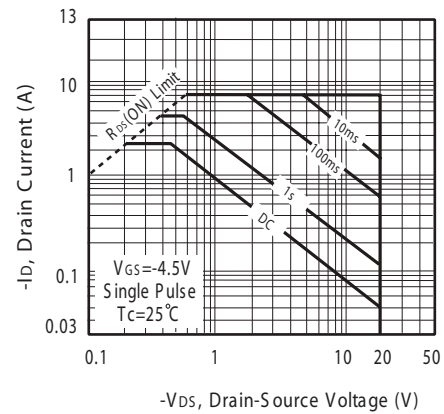
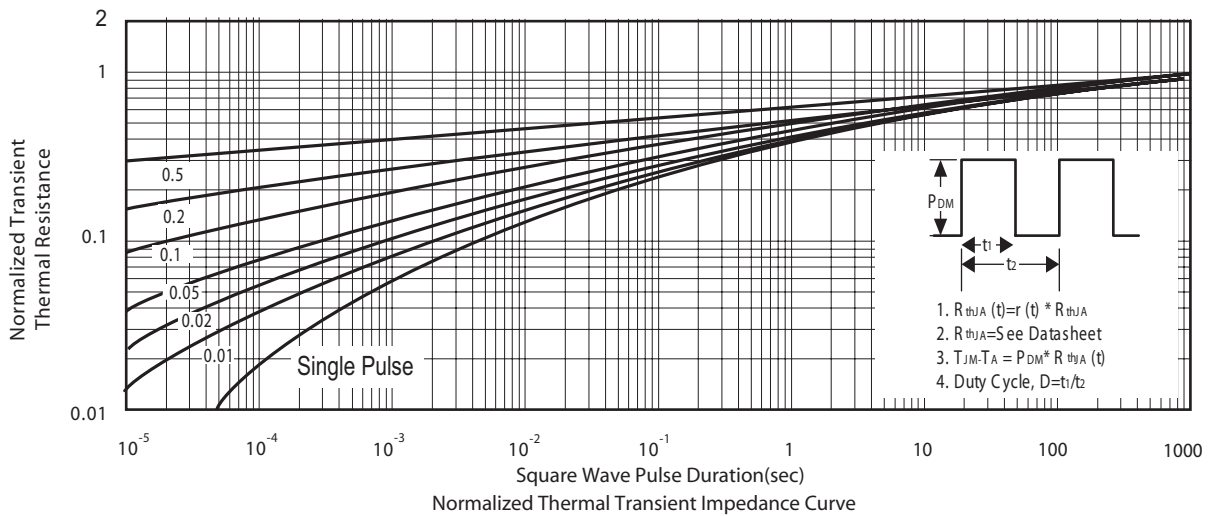
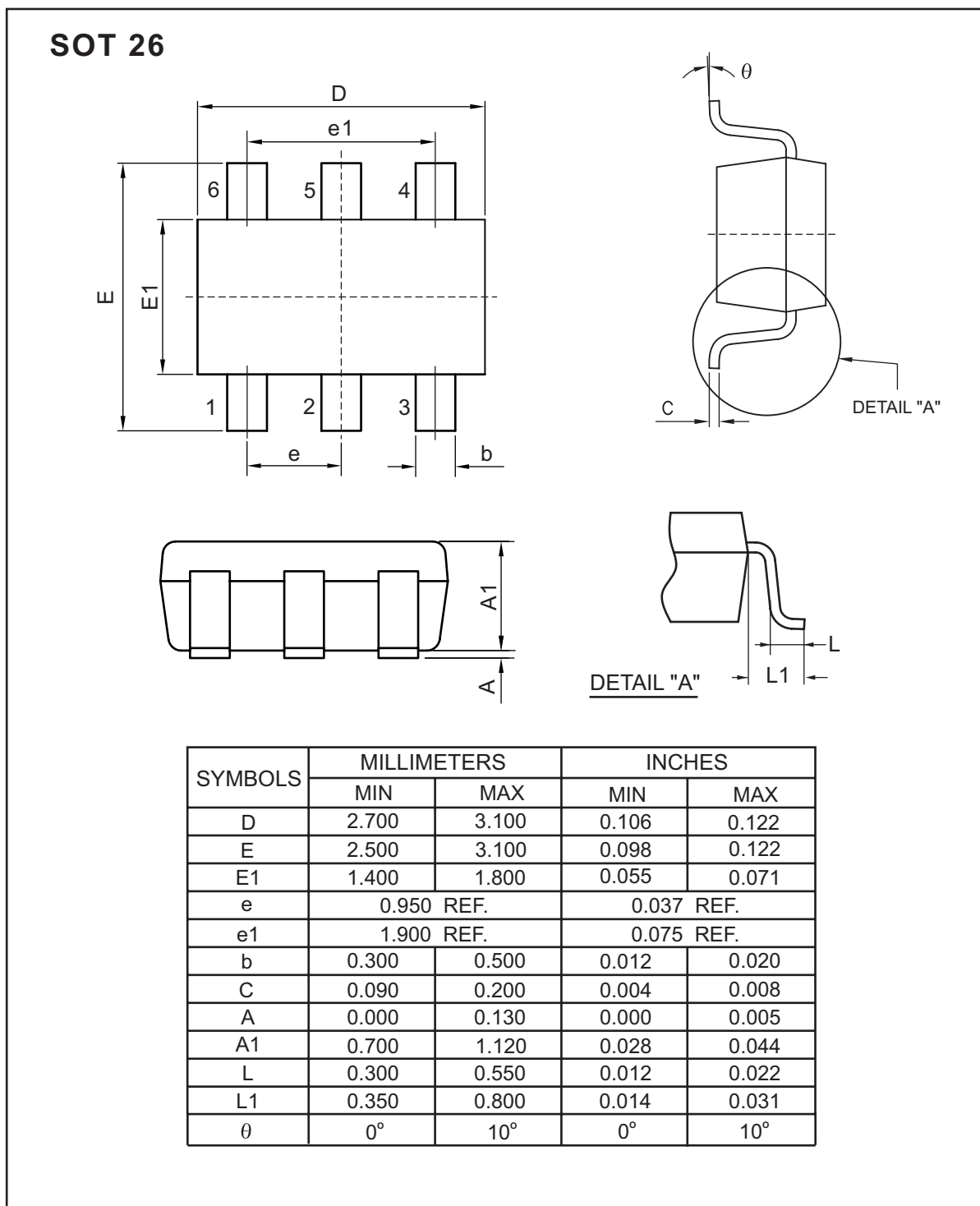


Figure 10. Maximum Safe Operating Area

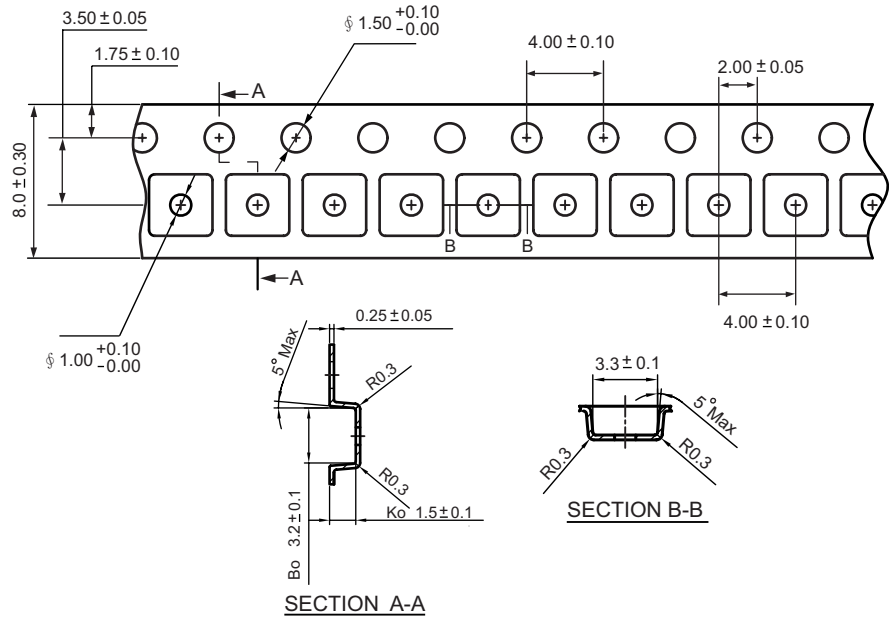


PACKAGE OUTLINE DIMENSIONS

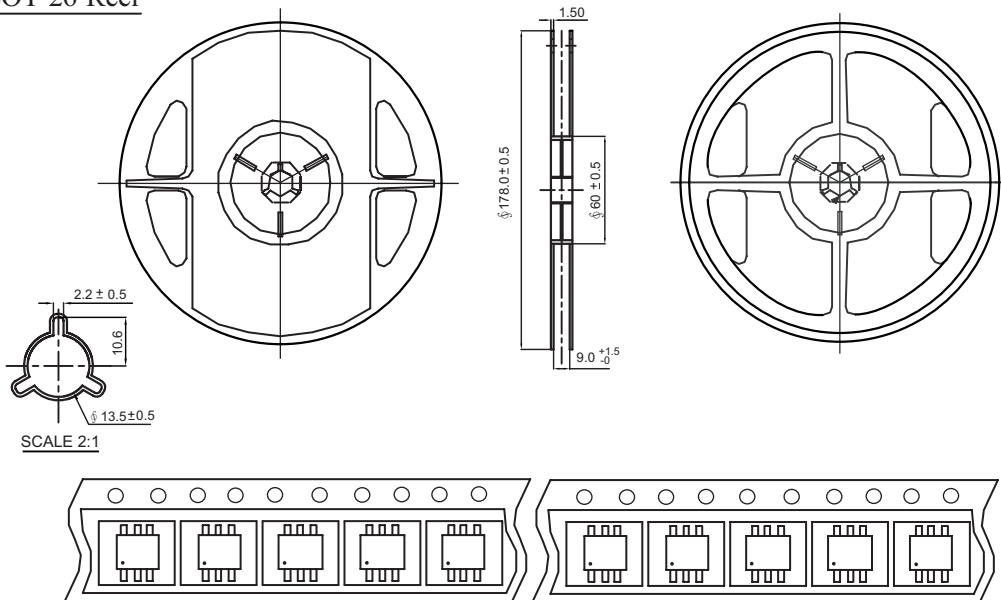


SOT 26 Tape and Reel Data

SOT 26 Carrier Tape



SOT 26 Reel



SOT 26