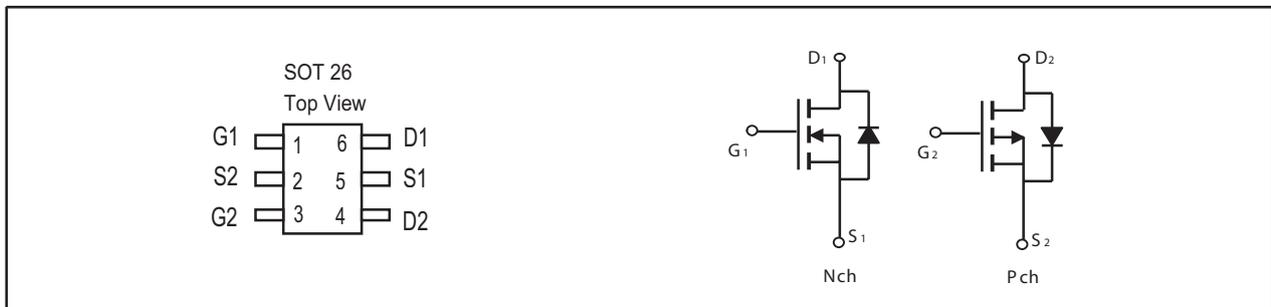


**Dual Enhancement Mode Field Effect Transistor (N and P Channel)**

PRODUCT SUMMARY (N-Channel)		
VDSS	ID	RDS(ON) (mΩ) Max
20V	2.5A	50 @ VGS=4.5V
		76 @ VGS=2.5V

PRODUCT SUMMARY (P-Channel)		
VDSS	ID	RDS(ON) (mΩ) Max
-20V	-2A	106 @ VGS=-4.5V
		198 @ VGS=-2.5V

**ABSOLUTE MAXIMUM RATINGS** ($T_A=25^{\circ}\text{C}$ 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	$T_C=25^{\circ}\text{C}$	2.5	-2	A
		$T_C=70^{\circ}\text{C}$	2	-1.6	A
I_{DM}	-Pulsed ^b	8	-7	A	
P_D	Maximum Power Dissipation ^a	$T_C=25^{\circ}\text{C}$	1	W	
		$T_C=70^{\circ}\text{C}$	0.64	W	
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 to 150		$^{\circ}\text{C}$	

THERMAL CHARACTERISTICS

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ^a	125	$^{\circ}\text{C}/\text{W}$
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N-Channel ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
B _V 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	0.7	1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =2.5A		40	50	m ohm
		V _{GS} =2.5V, I _D =2A		56	76	m ohm
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =2.5A		11		S
DYNAMIC CHARACTERISTICS [°]						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V f=1.0MHz		248		pF
C _{OSS}	Output Capacitance			83		pF
C _{RSS}	Reverse Transfer Capacitance			67		pF
SWITCHING CHARACTERISTICS [°]						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =10V I _D =1A V _{GS} =4.5V R _{GEN} =6 ohm		8.8		ns
t _r	Rise Time			14.1		ns
t _{D(OFF)}	Turn-Off Delay Time			18.1		ns
t _f	Fall Time			9		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			2.5		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A		0.8	1.2	V

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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		85	106	m ohm
		V _{GS} =-2.5V, I _D =-1A		147	198	m ohm
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-2A		6.5		S
DYNAMIC CHARACTERISTICS ^c						
C _{ISS}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V f=1.0MHz		235		pF
C _{OSS}	Output Capacitance			88		pF
C _{RSS}	Reverse Transfer Capacitance			54		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		42		ns
t _r	Rise Time			137		ns
t _{D(OFF)}	Turn-Off Delay Time			312		ns
t _f	Fall Time			218		ns
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-2A, V _{GS} =-4.5V		3.8		nC
Q _{gs}	Gate-Source Charge			0.4		nC
Q _{gd}	Gate-Drain Charge			1.8		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.

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N-Channel

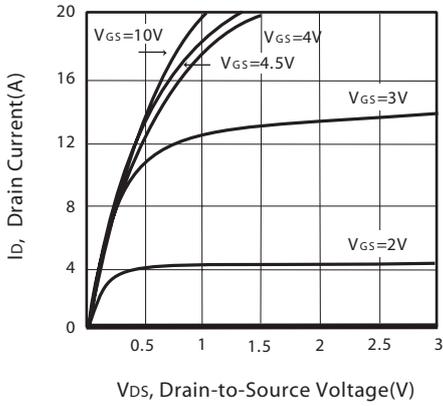


Figure 1. Output Characteristics

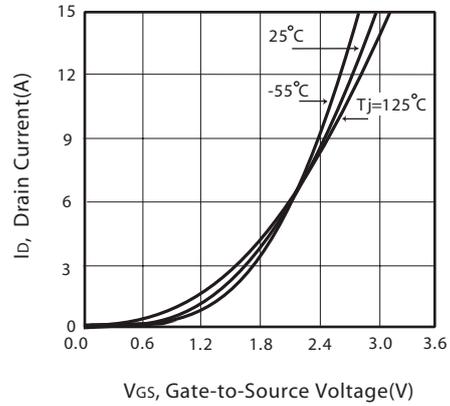


Figure 2. Transfer Characteristics

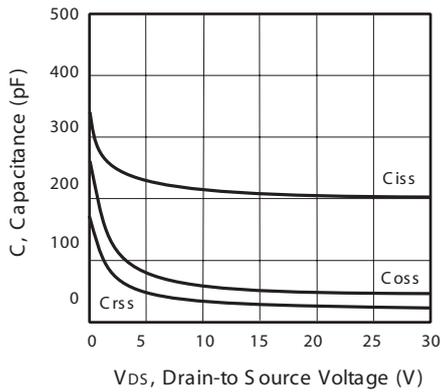


Figure 3. Capacitance

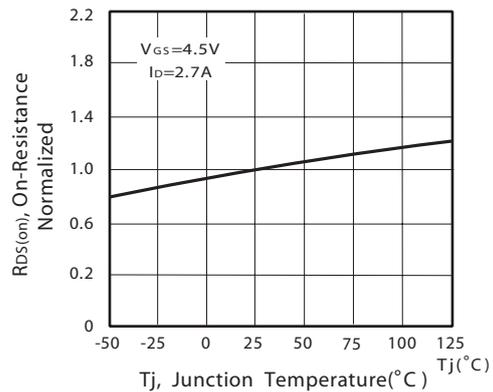


Figure 4. On-Resistance Variation with Temperature

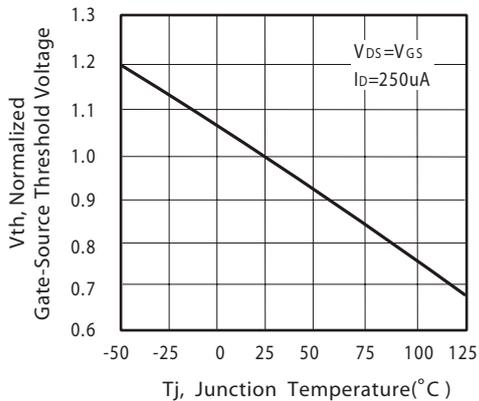


Figure 5. Gate Threshold Variation with Temperature

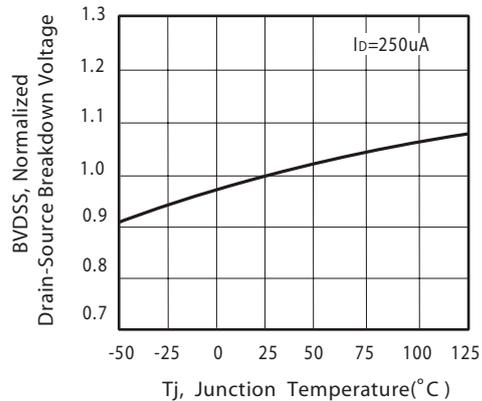


Figure 6. Breakdown Voltage Variation with Temperature

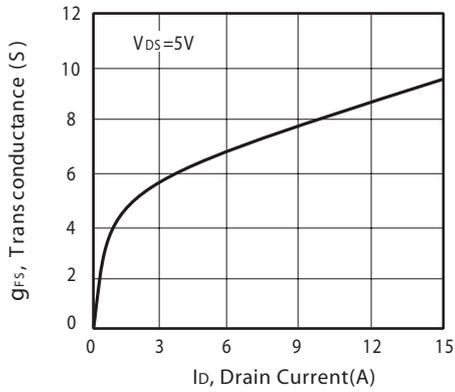


Figure 7. Transconductance Variation with Drain Current

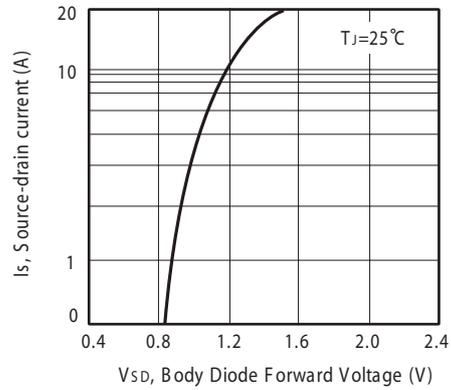


Figure 8. Body Diode Forward Voltage Variation with Source Current

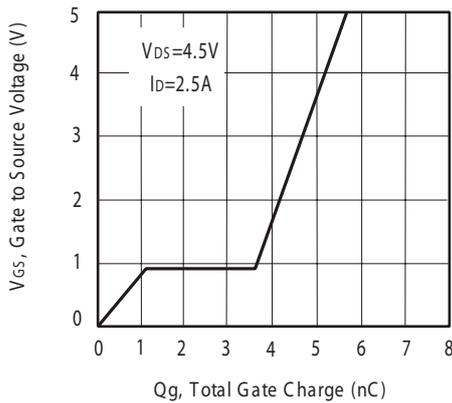


Figure 9. Gate Charge

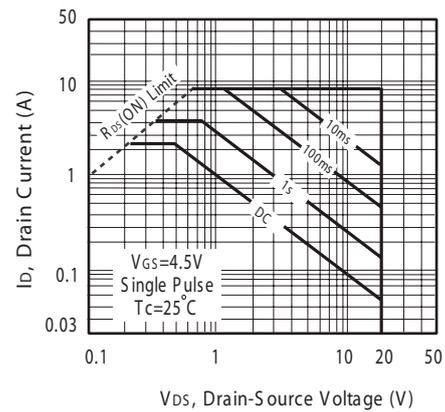
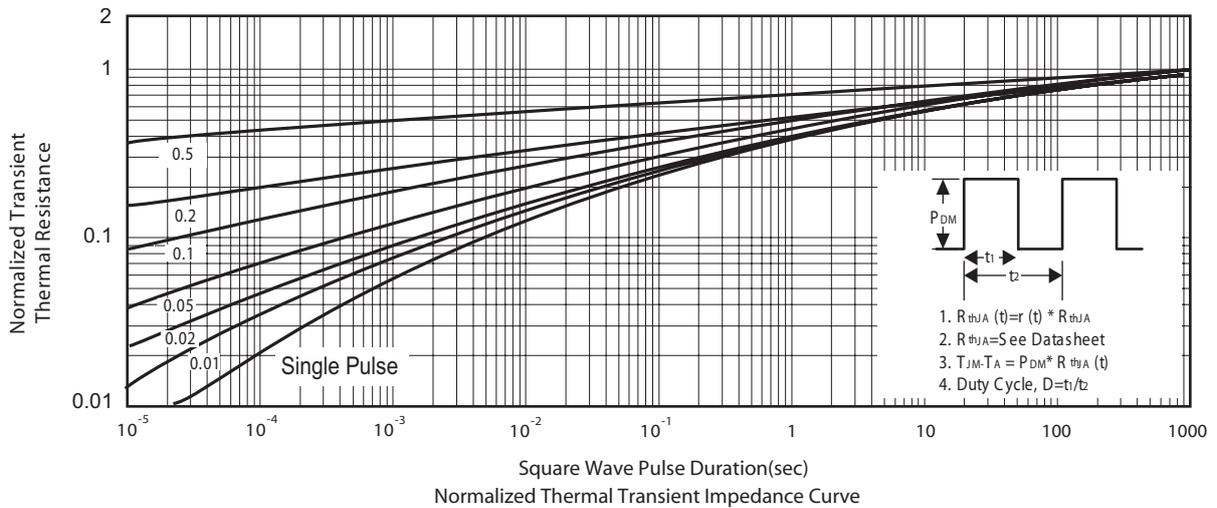


Figure 10. Maximum Safe Operating Area



P-Channel

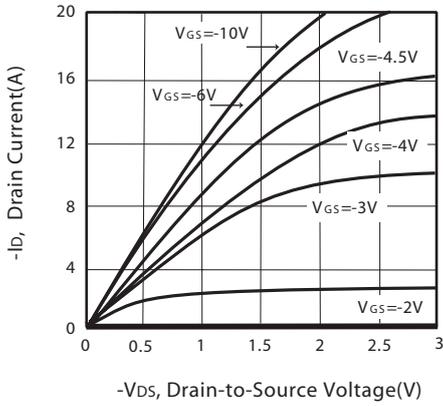


Figure 1. Output Characteristics

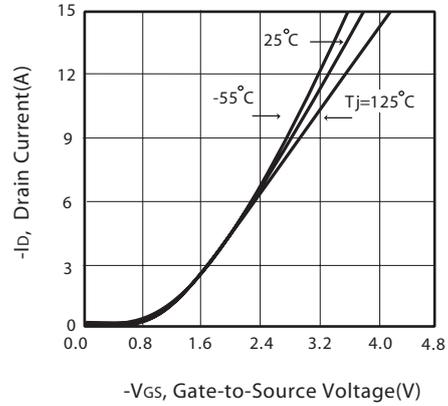


Figure 2. Transfer Characteristics

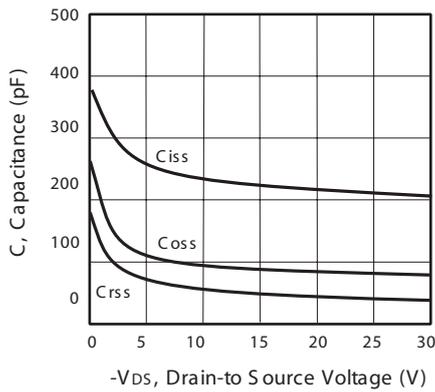


Figure 3. Capacitance

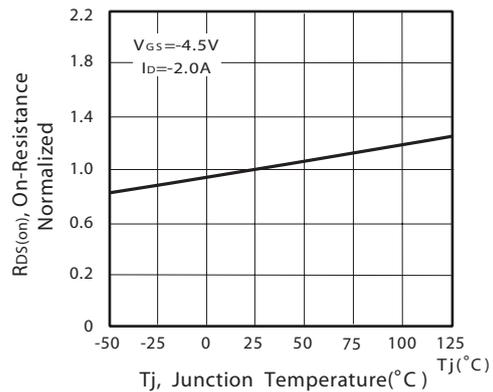


Figure 4. On-Resistance Variation with Temperature

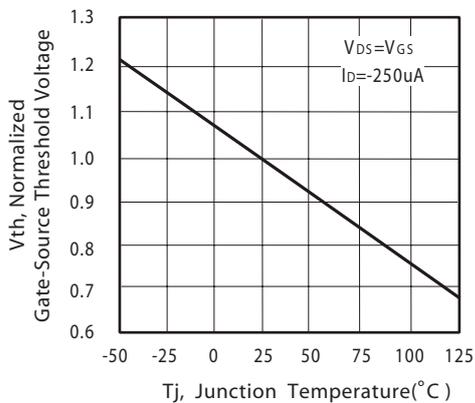


Figure 5. Gate Threshold Variation with Temperature

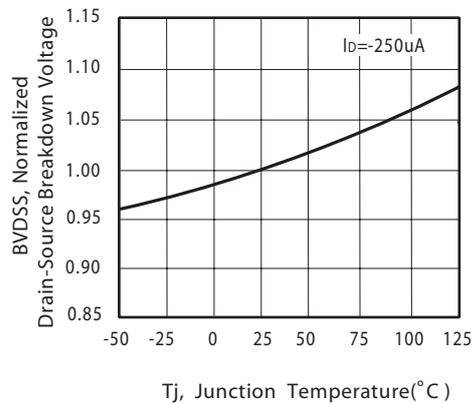


Figure 6. Breakdown Voltage Variation with Temperature

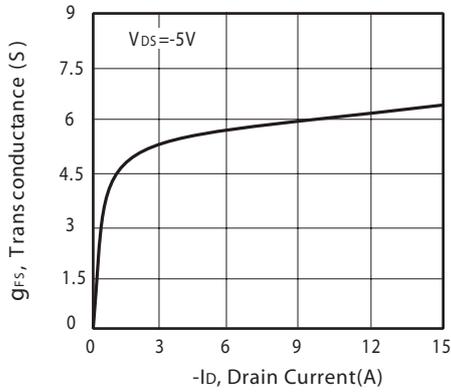


Figure 7. Transconductance Variation with Drain Current

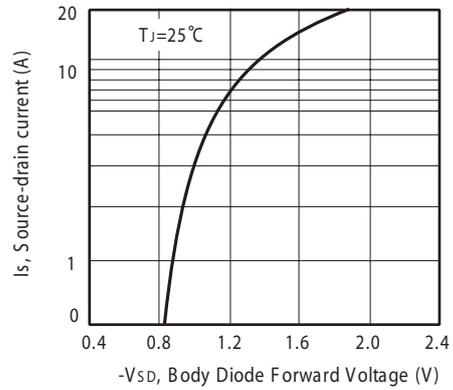


Figure 8. Body Diode Forward Voltage Variation with Source Current

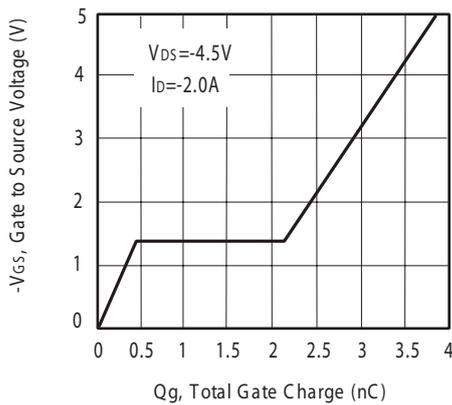


Figure 9. Gate Charge

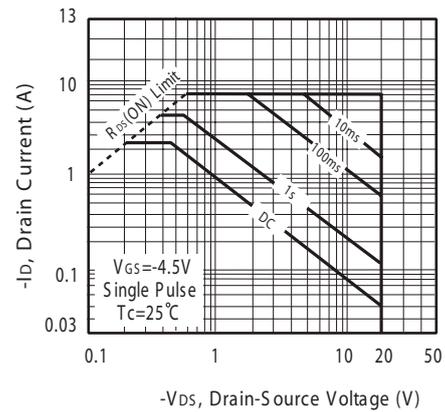
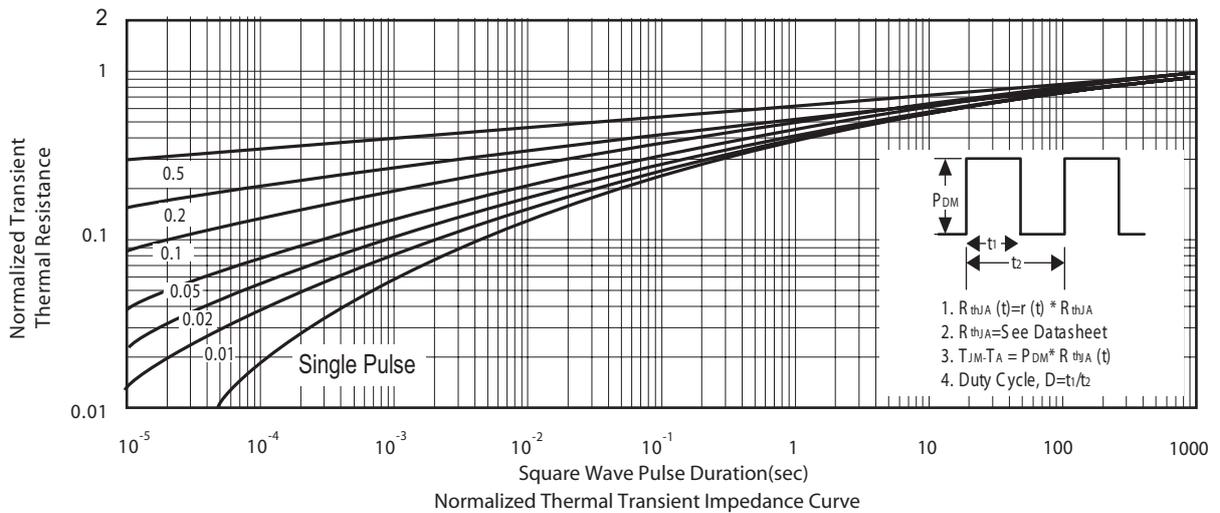
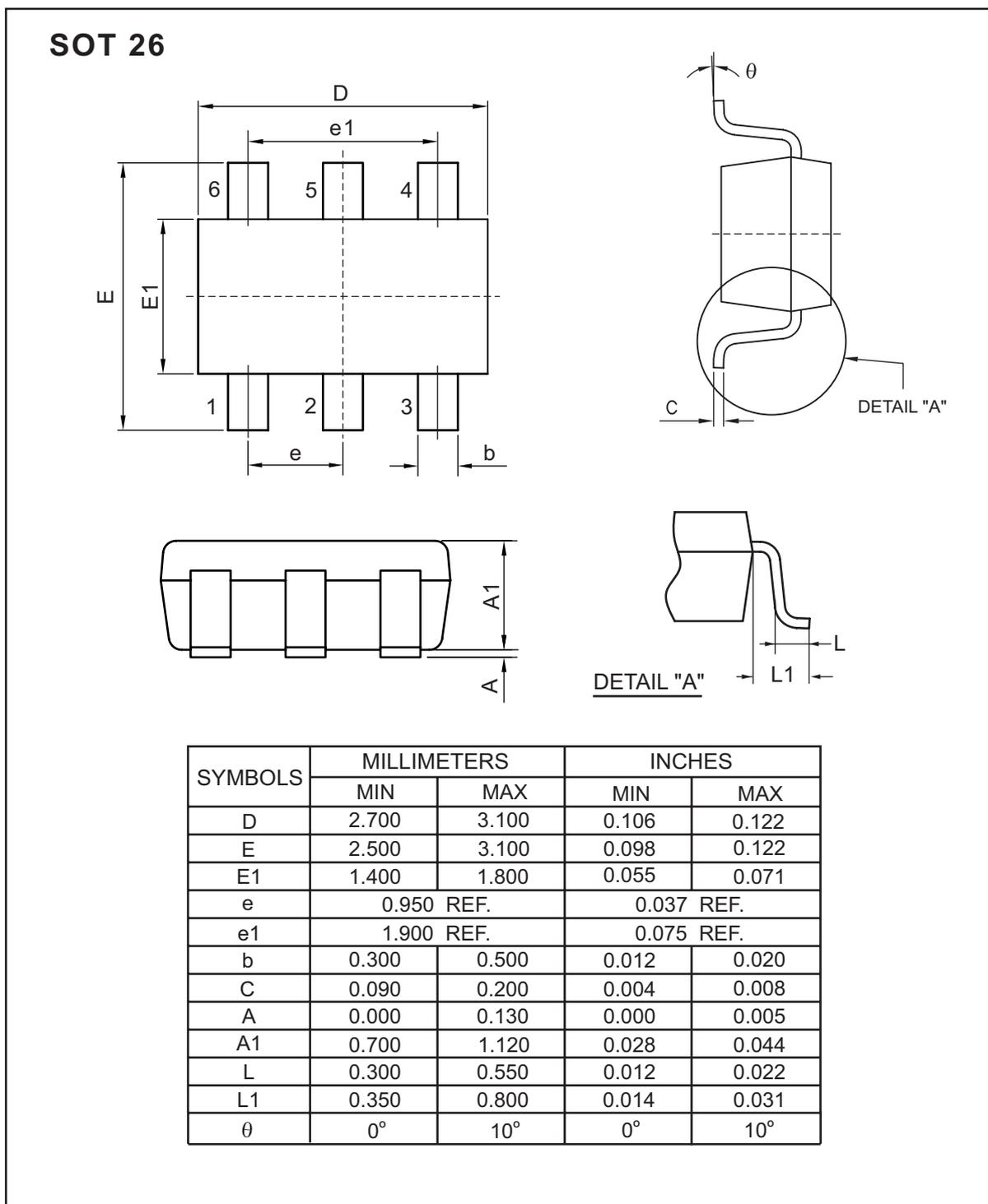


Figure 10. Maximum Safe Operating Area

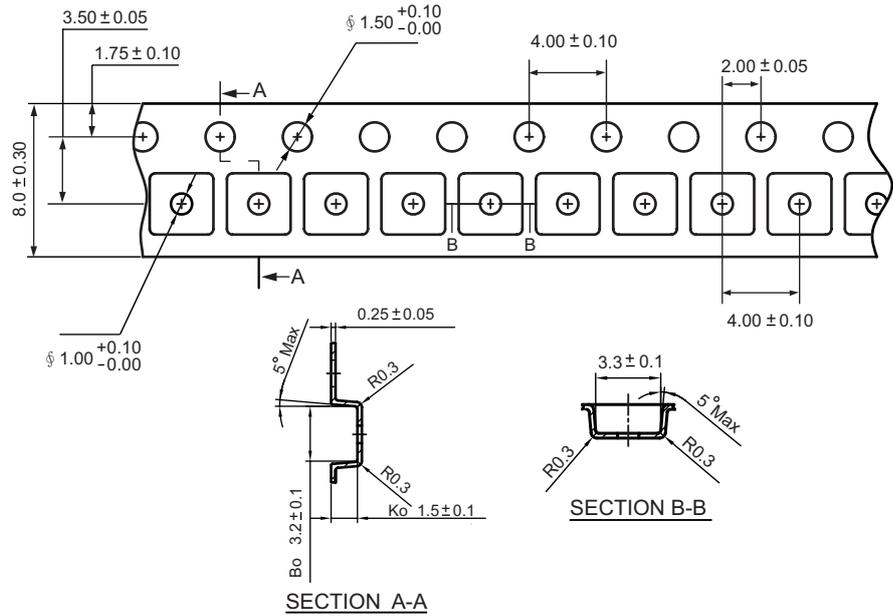


PACKAGE OUTLINE DIMENSIONS



SOT 26 Tape and Reel Data

SOT 26 Carrier Tape



SOT 26 Reel

