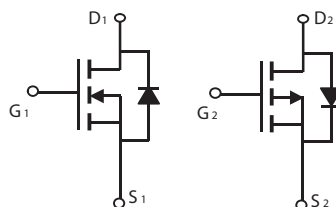
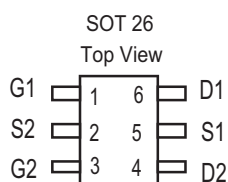


**Dual Enhancement Mode Field Effect Transistor (N and P Channel)****PRODUCT SUMMARY (N-Channel)**

VDSS	ID	RDS(ON) (mΩ) Max
20	4A	60 @ VGS=4.5V
		75 @ VGS=2.5V

PRODUCT SUMMARY (P-Channel)

VDSS	ID	RDS(ON) (mΩ) Max
-20V	-2.5A	138 @ VGS=-4.5V
		190 @ VGS=-2.5V

**ABSOLUTE MAXIMUM RATINGS (TA=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	±12	±12	V
I _D	Drain Current-Continuous ^a	T _A =25°C	4	A
		T _A =70°C	3.2	A
I _{DM}	-Pulsed ^b	10	9.4	A
P _D	Maximum Power Dissipation ^a	T _A =25°C	1.25	W
		T _A =70°C	0.8	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	100	°C/W
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N-Channel ELECTRICAL CHARACTERISTICS (TA=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} =±12V , V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.5	0.74	1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V , I _D =4A		40	60	m ohm
		V _{GS} =2.5V , I _D =3.5A		50	75	m ohm
g _{FS}	Forward Transconductance	V _{DS} =5V , I _D =4A		15		S
DYNAMIC CHARACTERISTICS ^c						
C _{ISS}	Input Capacitance	V _{DS} =10V,V _{GS} =0V f=1.0MHz		224		pF
C _{OSS}	Output Capacitance			84		pF
C _{RSS}	Reverse Transfer Capacitance			67		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		8		ns
t _r	Rise Time			11.5		ns
t _{D(OFF)}	Turn-Off Delay Time			15.4		ns
t _f	Fall Time			3.2		ns
Q _g	Total Gate Charge	V _{DS} =10V,I _D =4A,V _{GS} =4.5V		5		nC
Q _{gs}	Gate-Source Charge	V _{DS} =10V,I _D =4A,		0.85		nC
Q _{gd}	Gate-Drain Charge	V _{GS} =4.5V		2.4		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
V _{SD}	Diode Forward Voltage ^b	V _{GS} =0V,I _S =1.25A		0.81	1.2	V

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P-Channel ELECTRICAL CHARACTERISTICS (TA=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} =±12V , V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-0.7	-1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V , I _D =-2.5A		110	138	m ohm
		V _{GS} =-2.5V , I _D =-2.1A		150	190	m ohm
g _{FS}	Forward Transconductance	V _{DS} =-5V , I _D =-2.5A		5.2		S
DYNAMIC CHARACTERISTICS ^c						
C _{iss}	Input Capacitance	V _{DS} =-10V,V _{GS} =0V f=1.0MHz		290		pF
C _{oss}	Output Capacitance			40		pF
C _{RSS}	Reverse Transfer Capacitance			65		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		8		ns
t _r	Rise Time			9		ns
t _{D(OFF)}	Turn-Off Delay Time			14.5		ns
t _f	Fall Time			19		ns
Q _g	Total Gate Charge	V _{DS} =-10V,I _D =-2.5A,V _{GS} =-4.5V		2.9		nC
Q _{gs}	Gate-Source Charge	V _{DS} =-10V,I _D =-2.5A, V _{GS} =-4.5V		0.28		nC
Q _{gd}	Gate-Drain Charge			1		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
V _{SD}	Diode Forward Voltage ^b	V _{GS} =0V,I _S =-1.25A		-0.84	-1.2	V

Notes

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

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N-Channel

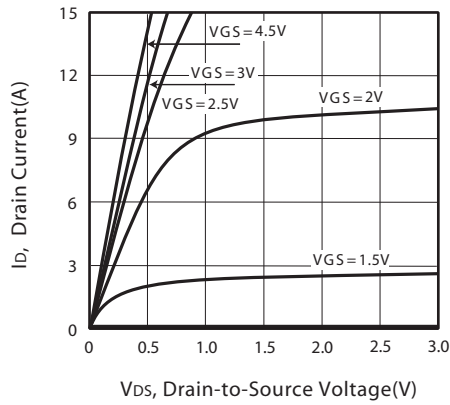


Figure 1. Output Characteristics

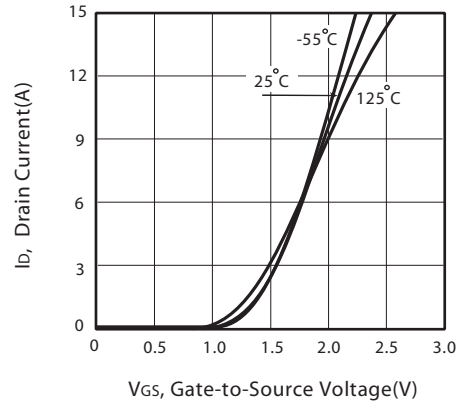


Figure 2. Transfer Characteristics

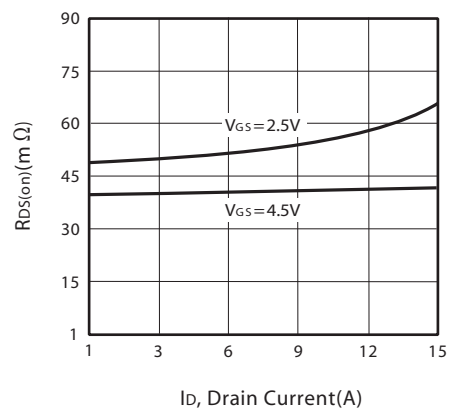


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

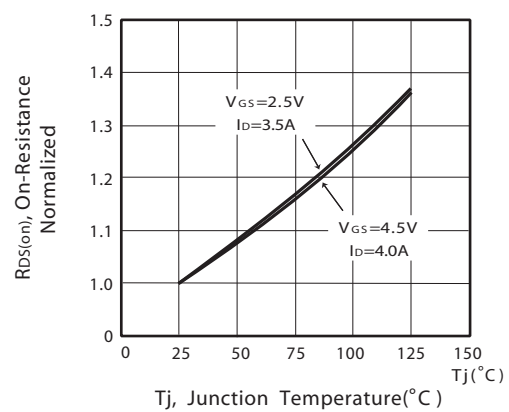


Figure 4. On-Resistance Variation with Drain Current and Temperature

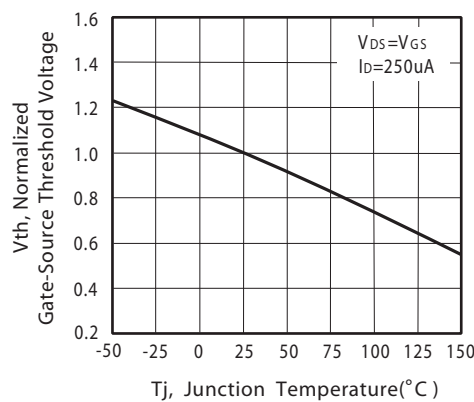


Figure 5. Gate Threshold Variation with Temperature

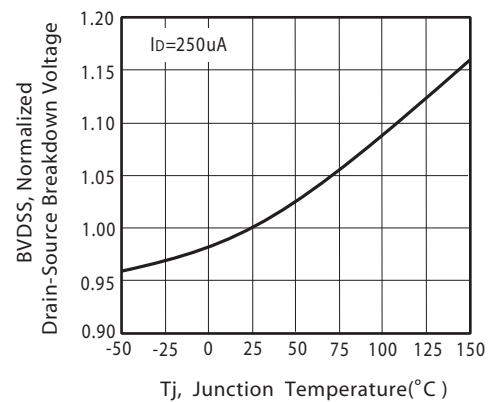


Figure 6. Breakdown Voltage Variation with Temperature

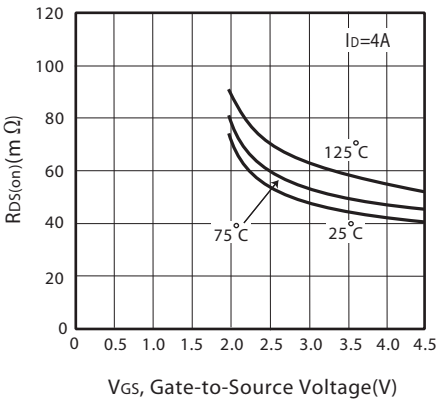


Figure 7. On-Resistance vs. Gate-Source Voltage

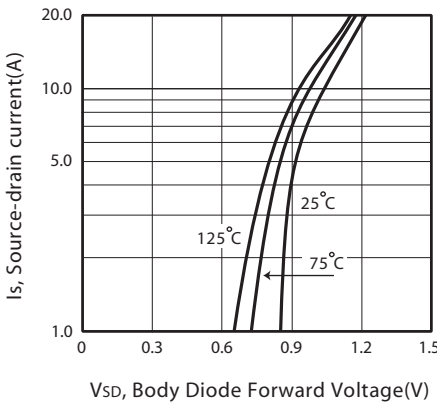


Figure 8. Body Diode Forward Voltage Variation with Source Current

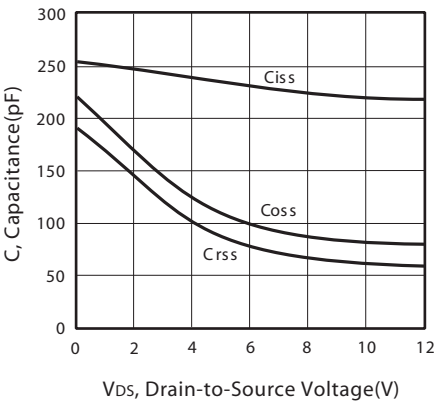


Figure 9. Capacitance

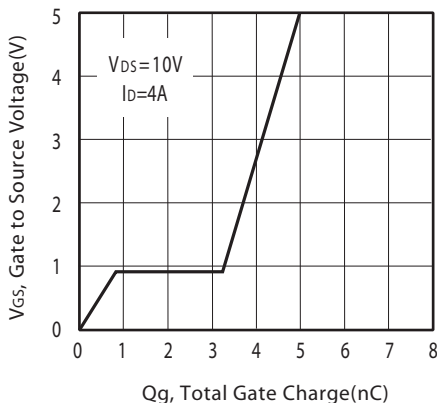


Figure 10. Gate Charge

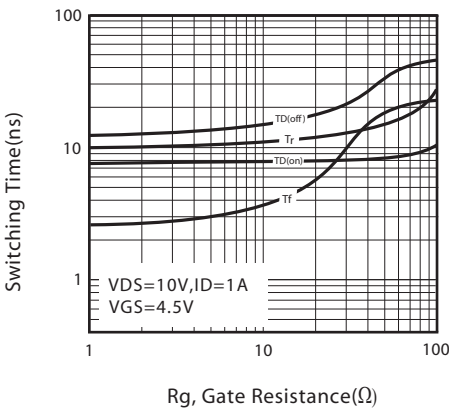


Figure 11. switching characteristics

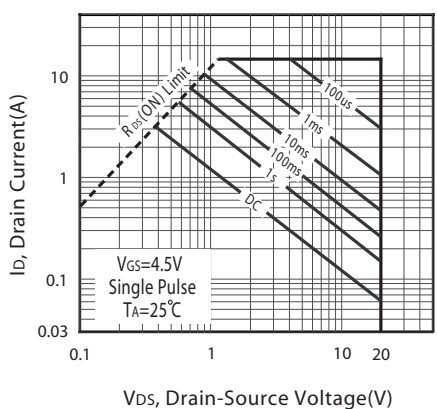
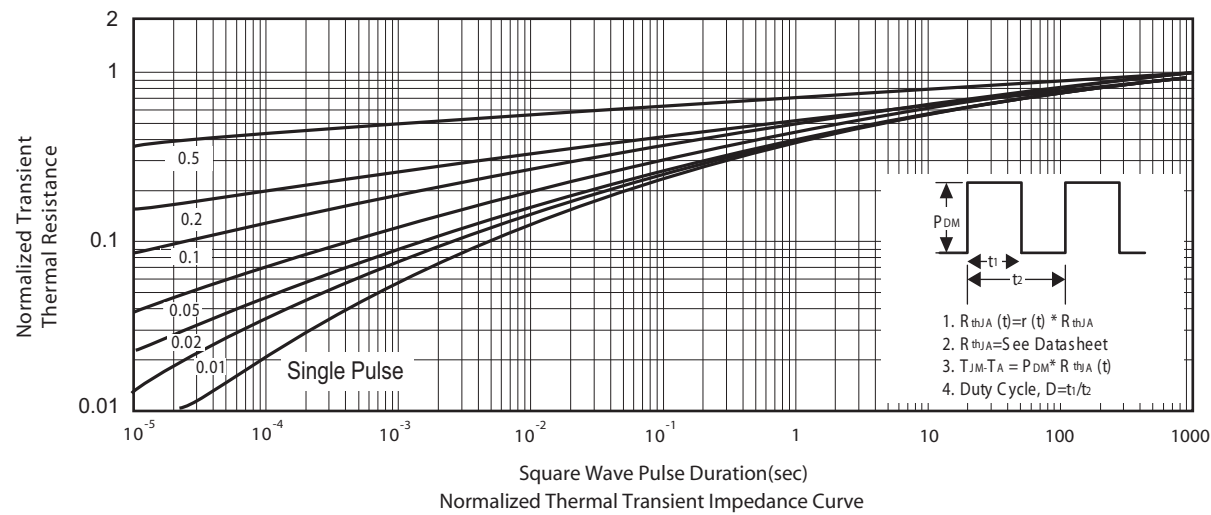


Figure 12. Maximum Safe Operating Area



P-Channel

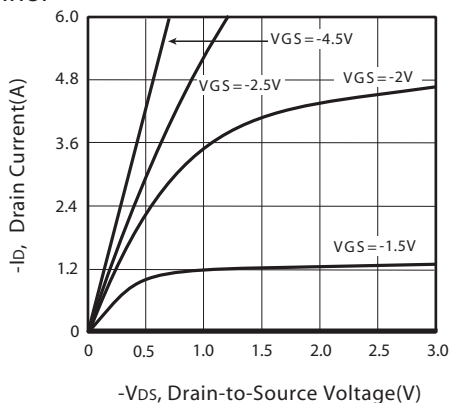


Figure 1. Output Characteristics

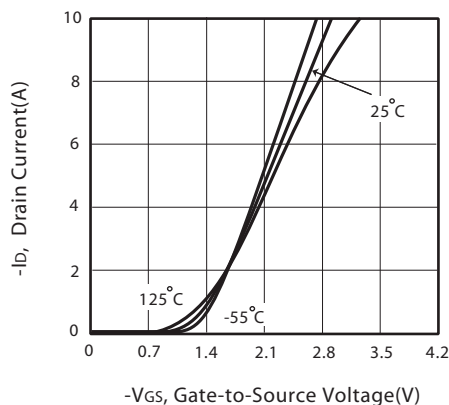


Figure 2. Transfer Characteristics

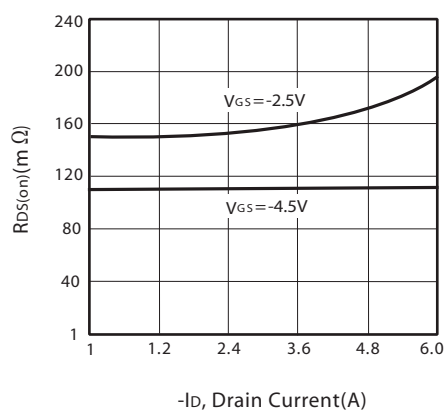


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

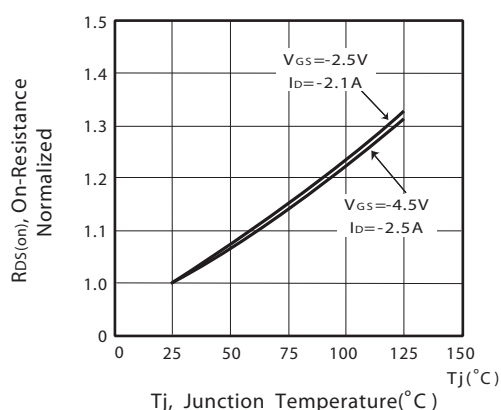


Figure 4. On-Resistance Variation with Drain Current and Temperature

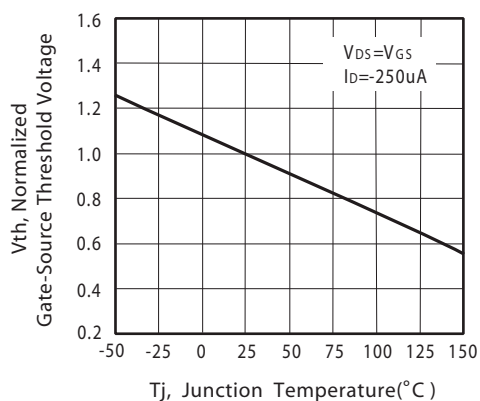


Figure 5. Gate Threshold Variation with Temperature

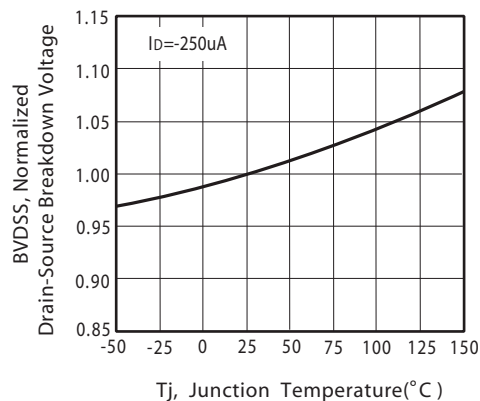


Figure 6. Breakdown Voltage Variation with Temperature

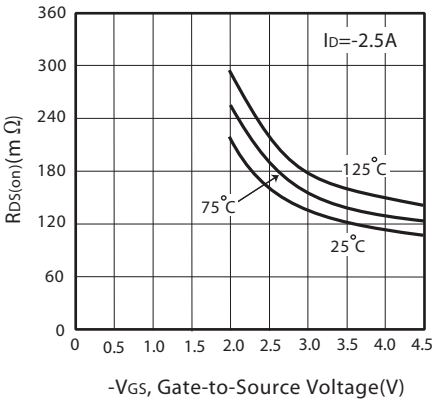


Figure 7. On-Resistance vs. Gate-Source Voltage

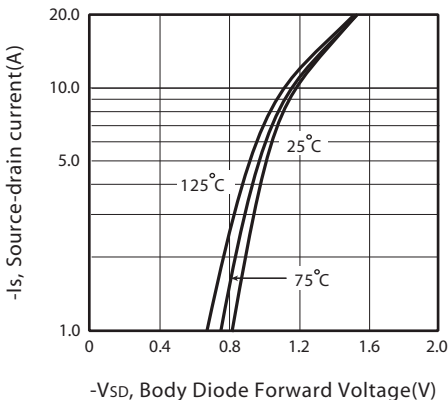


Figure 8. Body Diode Forward Voltage Variation with Source Current

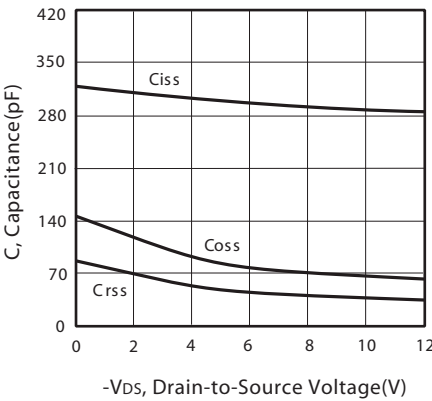


Figure 9. Capacitance

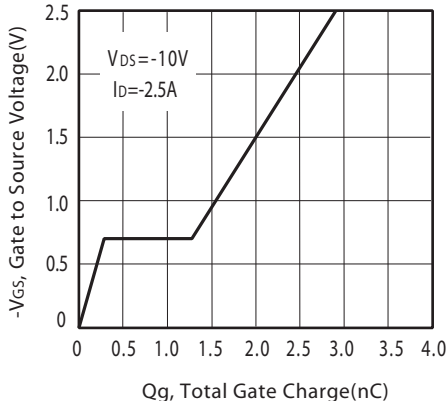


Figure 10. Gate Charge

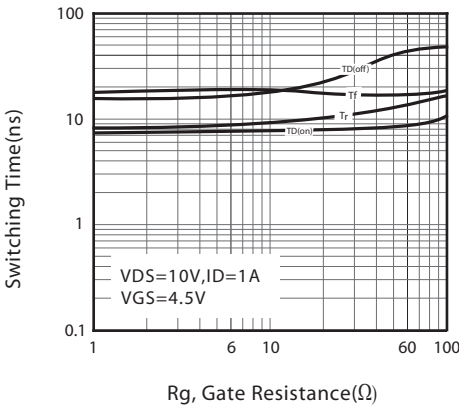


Figure 11. switching characteristics

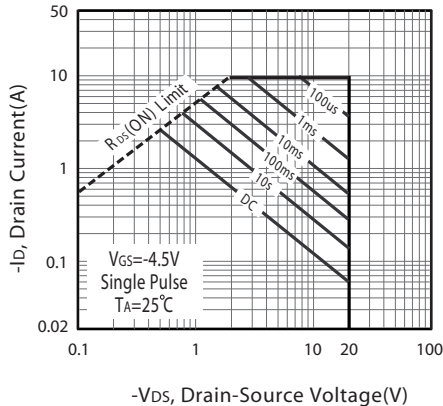
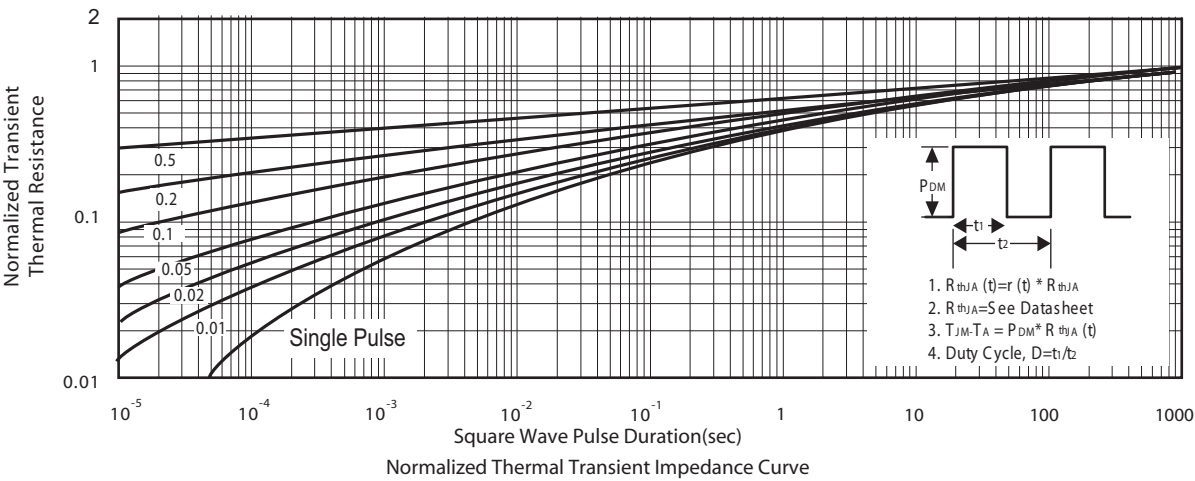
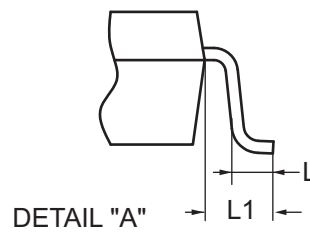
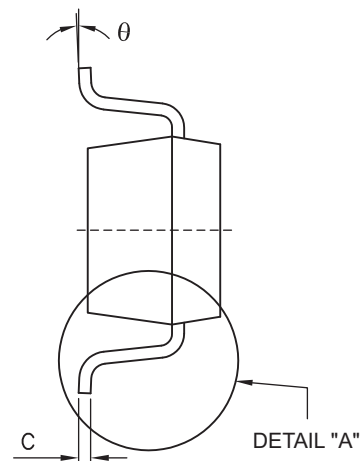
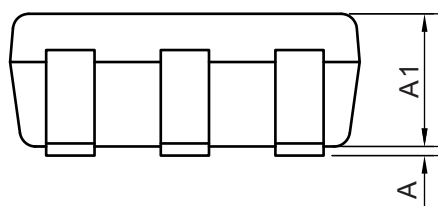
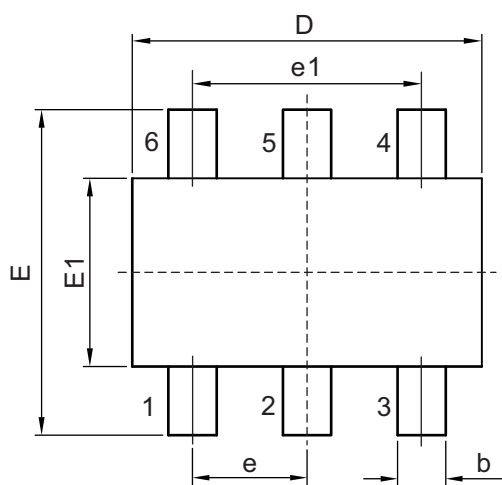


Figure 12. Maximum Safe Operating Area



PACKAGE OUTLINE DIMENSIONS

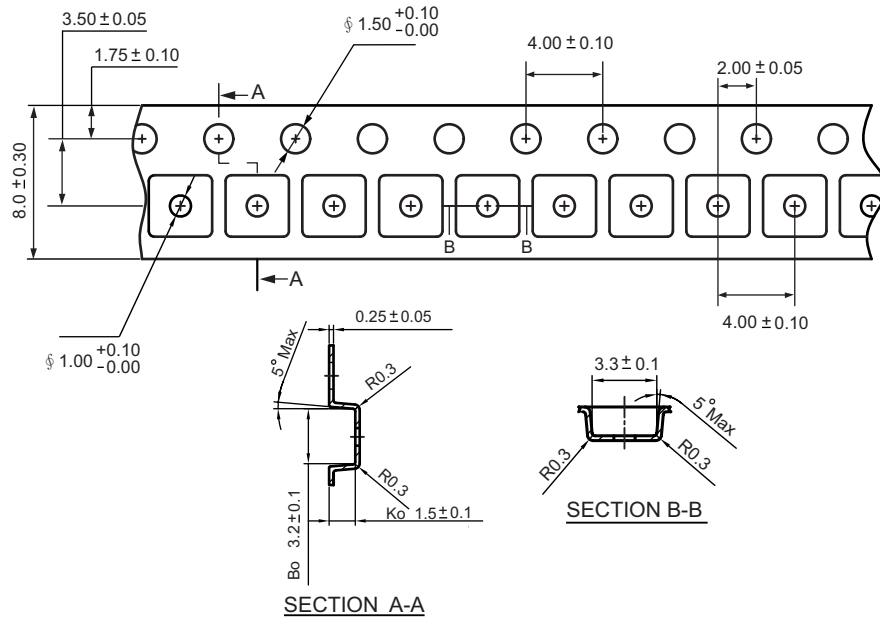
SOT 26



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
D	2.700	3.100	0.106	0.122
E	2.500	3.100	0.098	0.122
E1	1.400	1.800	0.055	0.071
e	0.950 REF.		0.037 REF.	
e1	1.900 REF.		0.075 REF.	
b	0.300	0.500	0.012	0.020
C	0.090	0.200	0.004	0.008
A	0.000	0.130	0.000	0.005
A1	0.700	1.120	0.028	0.044
L	0.300	0.550	0.012	0.022
L1	0.350	0.800	0.014	0.031
θ	0°	10°	0°	10°

SOT 26 Tape and Reel Data

SOT 26 Carrier Tape



SOT 26 Reel

