



STS3621

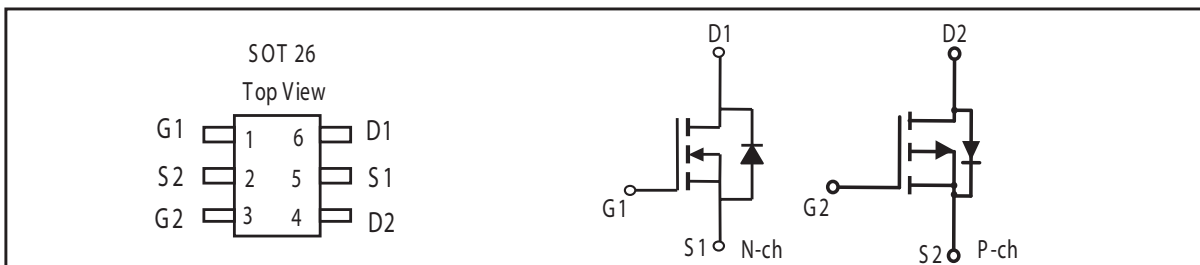
SamHop Microelectronics Corp.

Oct. 24 2006

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

PRODUCT SUMMARY (N-Channel)		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
30V	3A	50 @ V _{GS} = 10V
		65 @ V _{GS} = 4.5V

PRODUCT SUMMARY (P-Channel)		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
-30V	-2A	90 @ V _{GS} = -10V
		135 @ V _{GS} = -4.5V



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

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage		V _{DS}	30	-30	V
Gate-Source Voltage		V _{GS}	±20	±20	V
Drain Current-Continuous ^a @ T _a	25°C	I _D	3	-2	A
	70°C		2.7	1.8	A
-Pulsed ^b		I _{DM}	12	-8	A
Drain-Source Diode Forward Current ^a		I _S	1.25	-1.25	A
Maximum Power Dissipation ^a	T _a =25°C	P _D	1.25		W
	T _a =70°C		0.8		
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150		°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R _{θJA}	100	°C/W
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N-Channel ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V			±100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.7	3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 3A		40	50	m-ohm
		V _{GS} = 4.5V, I _D = 2A		52	65	m-ohm
On-State Drain Current	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 4.5V	10			A
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 3A		9		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V f = 1.0MHz		330		pF
Output Capacitance	C _{OSS}			70		pF
Reverse Transfer Capacitance	C _{RSS}			45		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 15V, I _D = 1A, V _{GS} = 10V, R _{GEN} = 6 ohm		9		ns
Rise Time	t _r			9		ns
Turn-Off Delay Time	t _{D(OFF)}			15		ns
Fall Time	t _f			10		ns
Total Gate Charge	Q _g	V _{DS} = 15V, I _D = 3A, V _{GS} = 10V		6		nC
		V _{DS} = 15V, I _D = 3A, V _{GS} = 4.5V		3		nC
Gate-Source Charge	Q _{gs}	V _{DS} = 15V, I _D = 3A V _{GS} = 10V		1		nC
Gate-Drain Charge	Q _{gd}			1.5		nC

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

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250µA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	µA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
ON CHARACTERISTICS ^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250µA	-1	-1.8	-3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = -10V, I _D = -2A		75	90	m-ohm
		V _{GS} = -4.5V, I _D = -1A		120	135	m-ohm
On-State Drain Current	I _{D(ON)}	V _{DS} = -5V, V _{GS} = -10V	8			A
Forward Transconductance	g _{FS}	V _{DS} = -5V, I _D = -3A		5.5		S
DYNAMIC CHARACTERISTICS ^c						
Input Capacitance	C _{ISS}	V _{DS} = -15V, V _{GS} = 0V f = 1.0MHz		360		pF
Output Capacitance	C _{OSS}			84		pF
Reverse Transfer Capacitance	C _{RSS}			52		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -15V, I _D = -1A, V _{GEN} = -10V, R _{GEN} = 6 ohm		6		ns
Rise Time	t _r			9.5		ns
Turn-Off Delay Time	t _{D(OFF)}			48		ns
Fall Time	t _f			25		ns
Total Gate Charge	Q _g	V _{DS} = -15V, I _D = -2A, V _{GS} = -10V		7		nC
		V _{DS} = -15V, I _D = -2A, V _{GS} = -4.5V		3.4		nC
Gate-Source Charge	Q _{gs}	V _{DS} = -15V, I _D = -2A		0.9		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = -10V		2.2		nC

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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{V}, I_S = 1.25\text{A}$	N-Ch	0.81	1.2	V
		$V_{GS} = 0\text{V}, I_S = -1.25\text{A}$	P-Ch	-0.8	-1.2	

Notes

a. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.

b. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

c. Guaranteed by design, not subject to production testing.

N-Channel

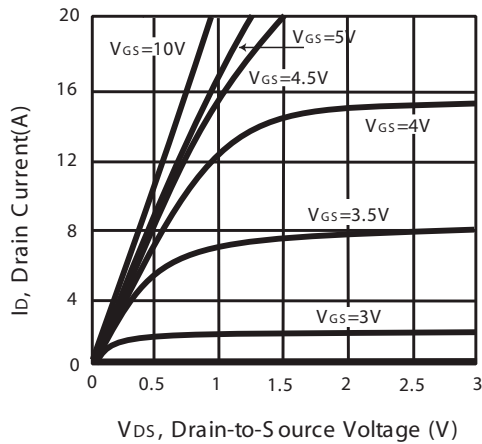


Figure 1. Output Characteristics

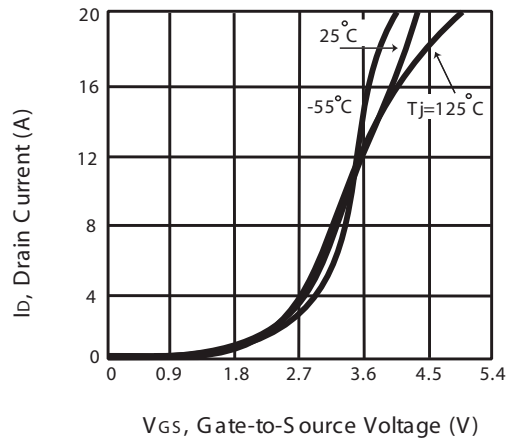


Figure 2. Transfer Characteristics

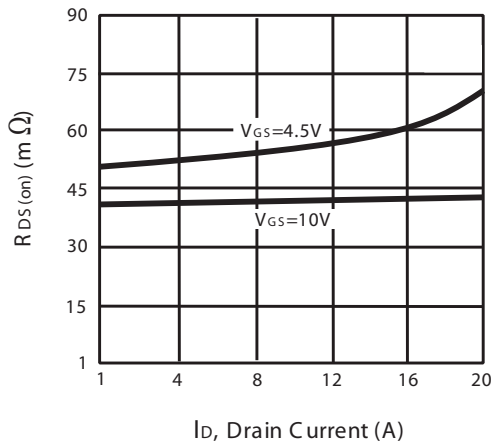


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

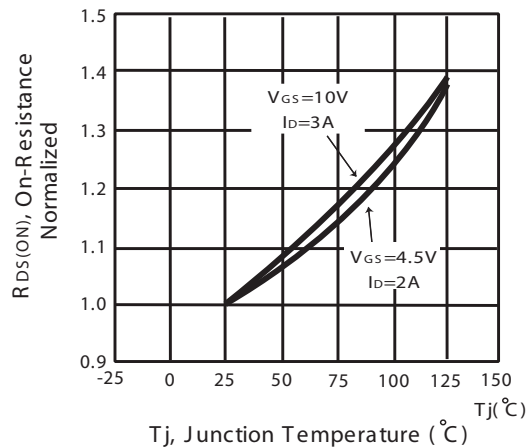


Figure 4. On-Resistance Variation with Drain Current and Temperature

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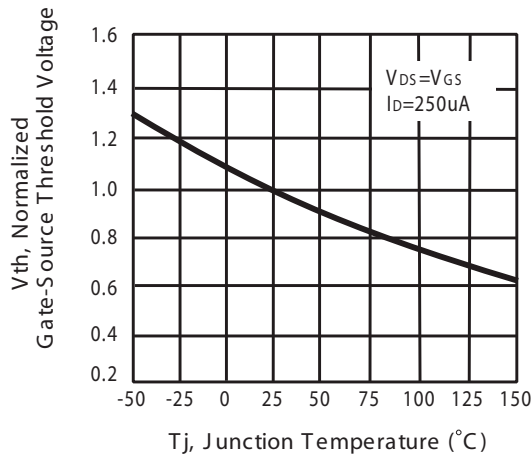


Figure 5. Gate Threshold Variation with Temperature

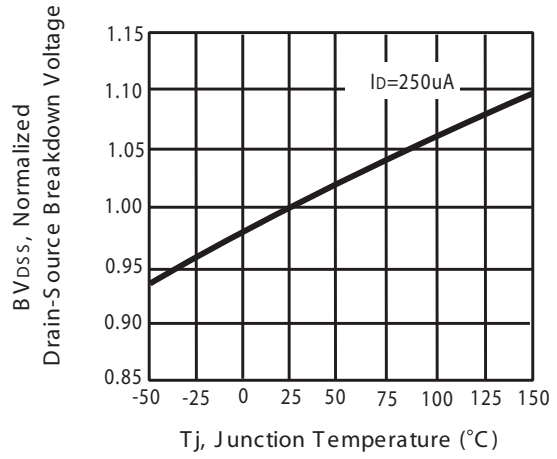


Figure 6. Breakdown Voltage Variation with Temperature

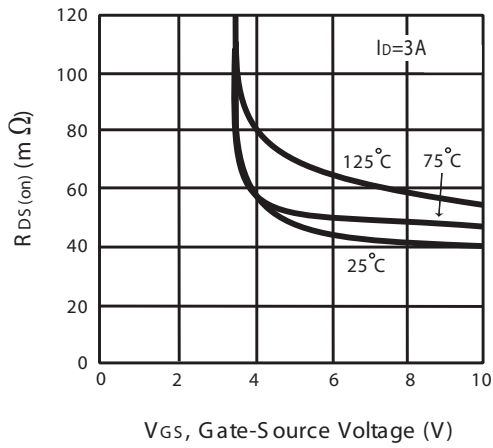


Figure 7. On-Resistance vs. Gate-Source Voltage

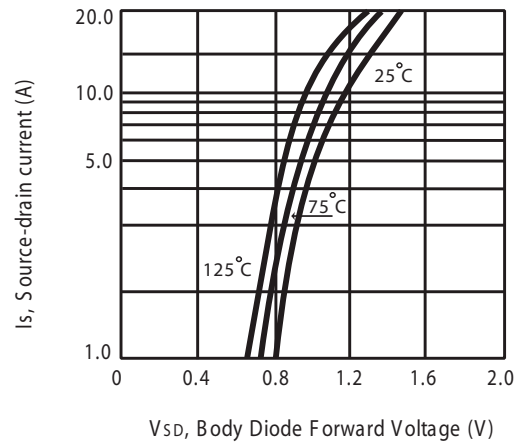


Figure 8. Body Diode Forward Voltage Variation with Source Current

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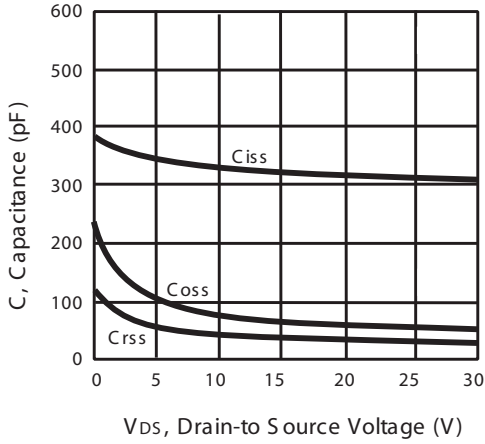


Figure 9. Capacitance

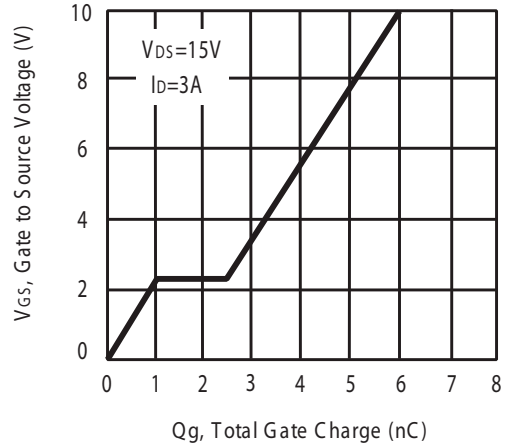


Figure 10. Gate Charge

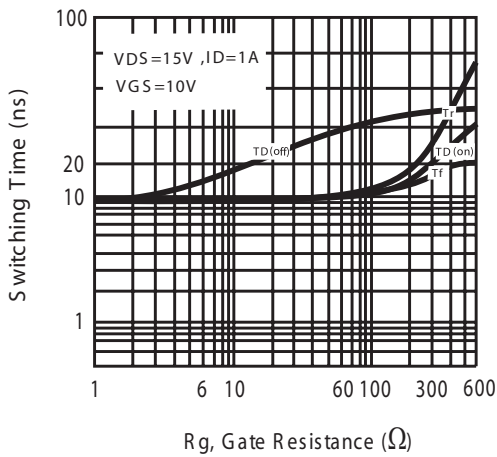


Figure 11. switching characteristics

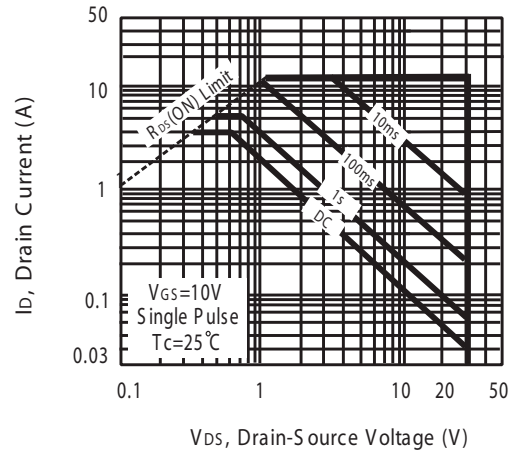
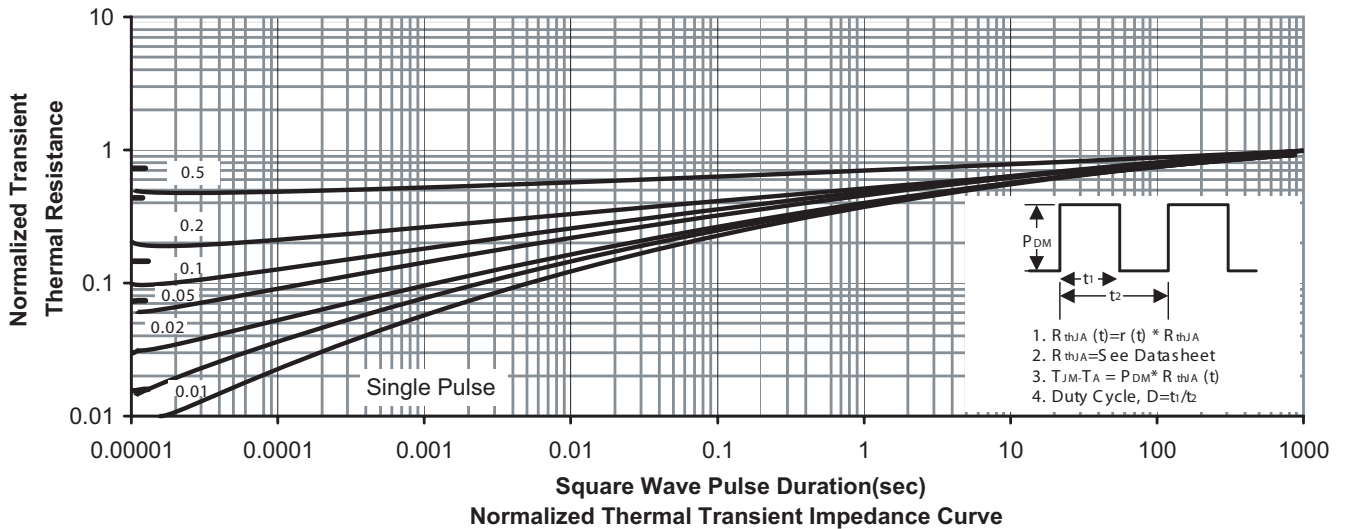


Figure 12. Maximum Safe Operating Area



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P-Channel

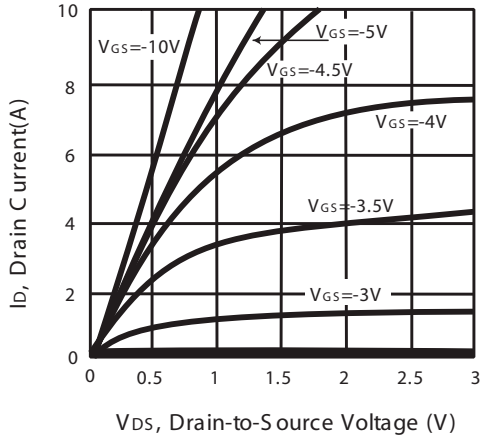


Figure 1. Output Characteristics

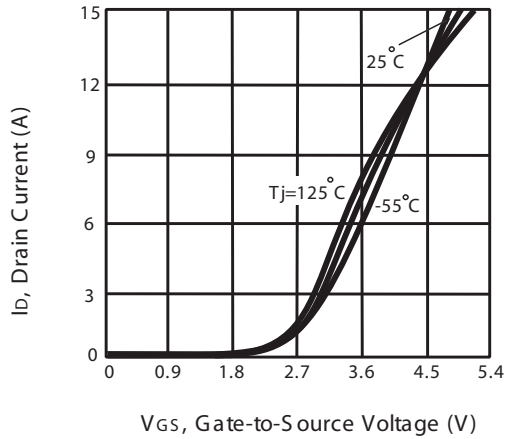


Figure 2. Transfer Characteristics

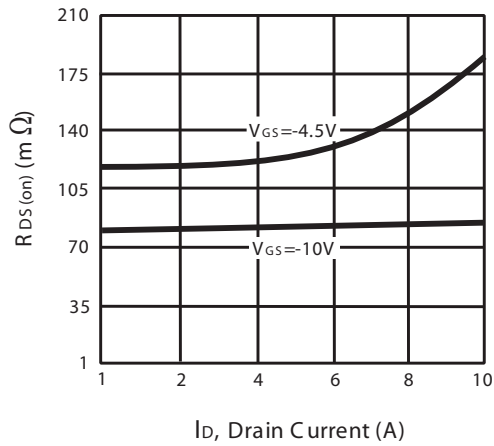


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

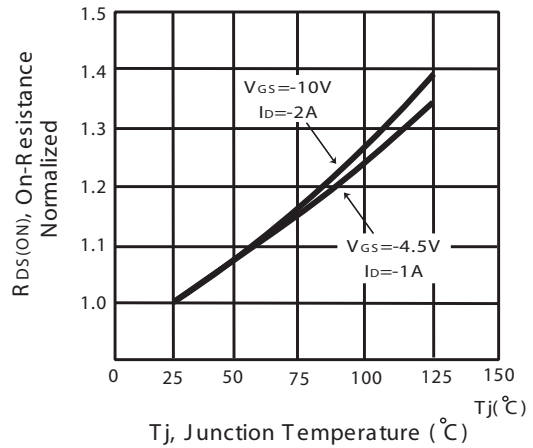


Figure 4. On-Resistance Variation with Drain Current and Temperature

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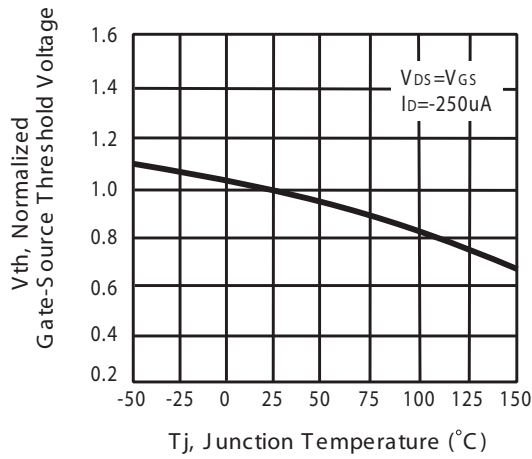


Figure 5. Gate Threshold Variation with Temperature

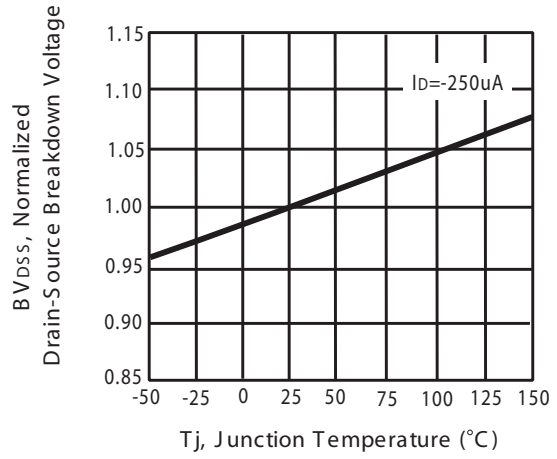


Figure 6. Breakdown Voltage Variation with Temperature

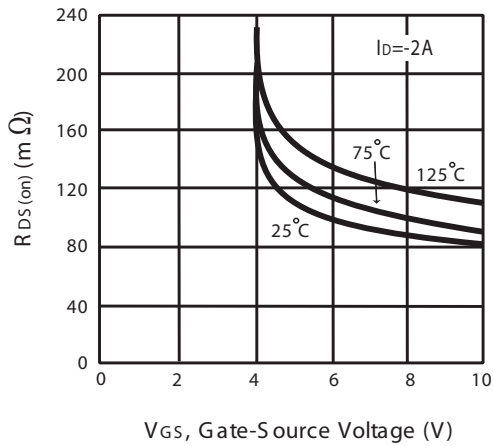


Figure 7. On-Resistance vs. Gate-Source Voltage

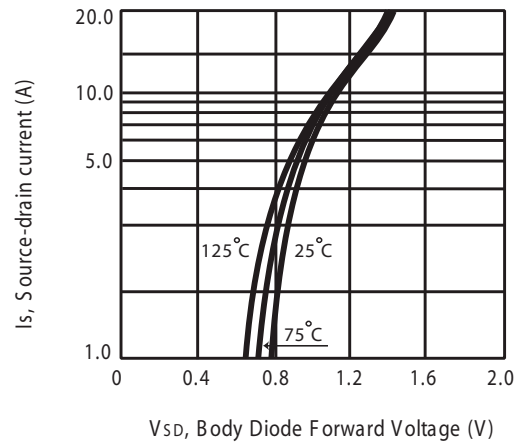


Figure 8. Body Diode Forward Voltage Variation with Source Current

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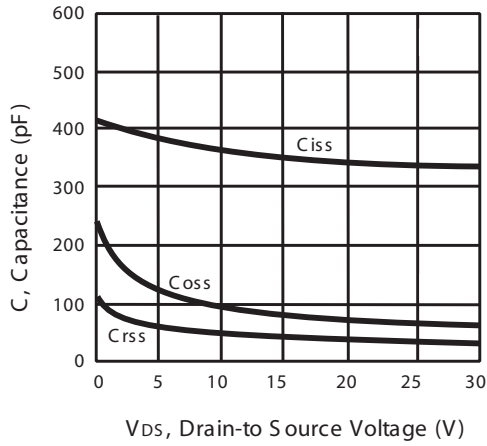


Figure 9. Capacitance

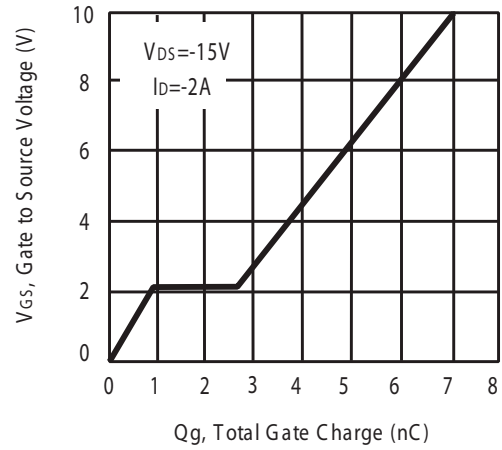


Figure 10. Gate Charge

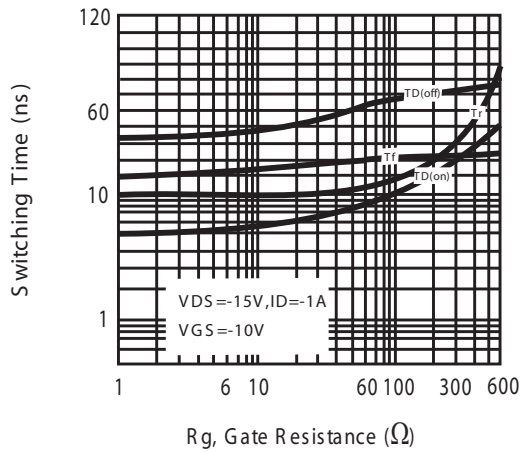


Figure 11. switching characteristics

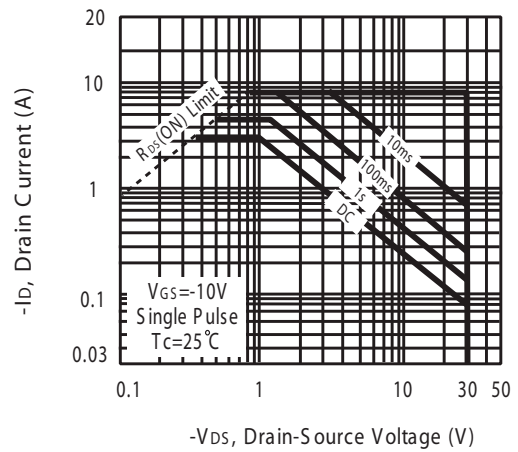
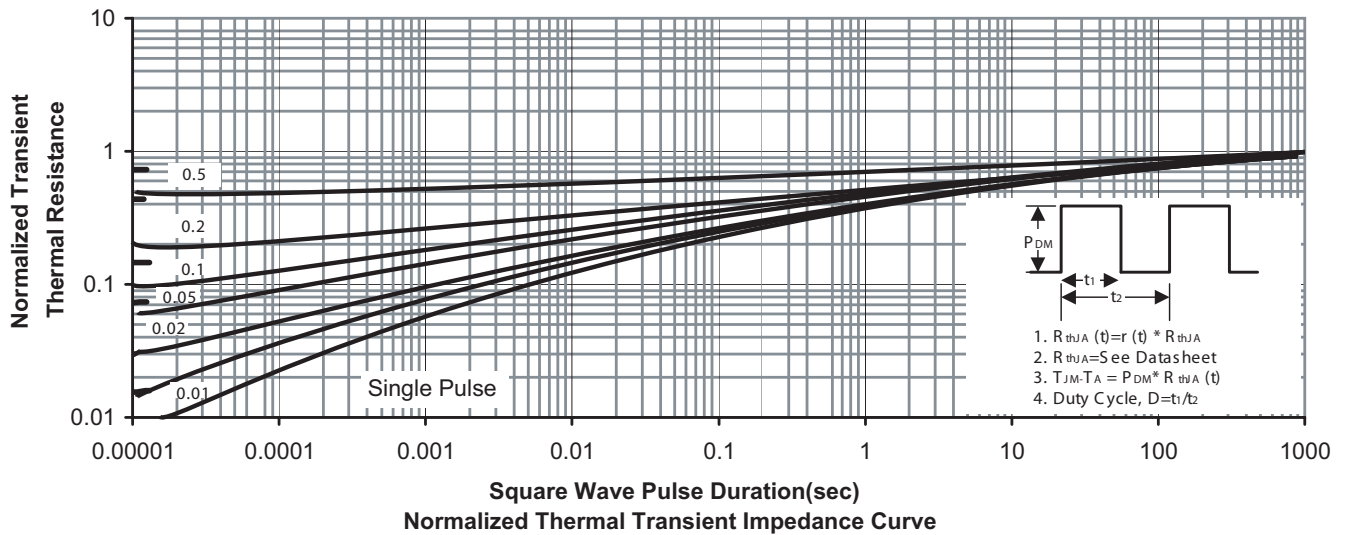


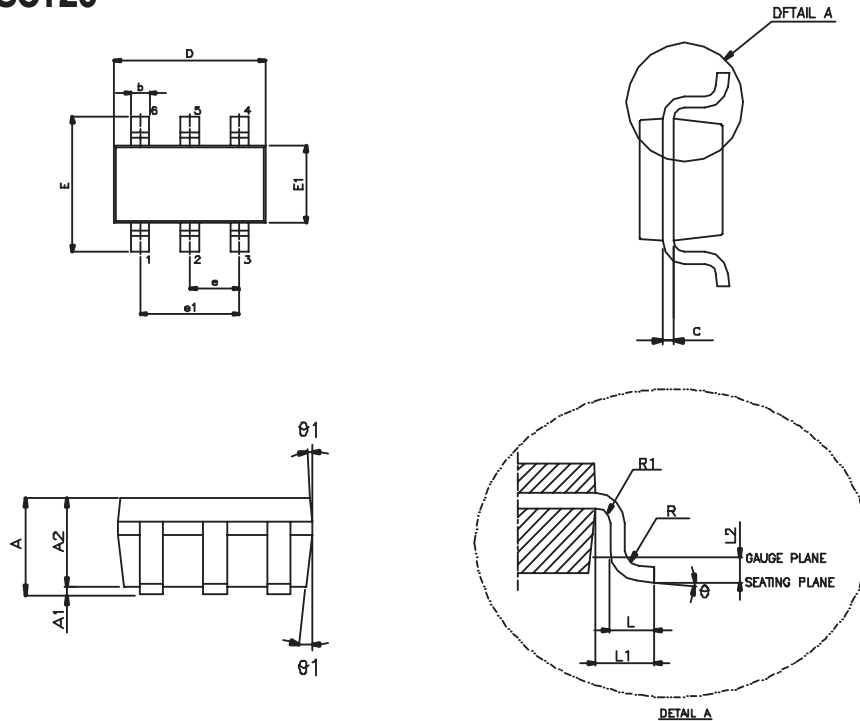
Figure 12. Maximum Safe Operating Area



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PACKAGE OUTLINE DIMENSIONS

SOT26

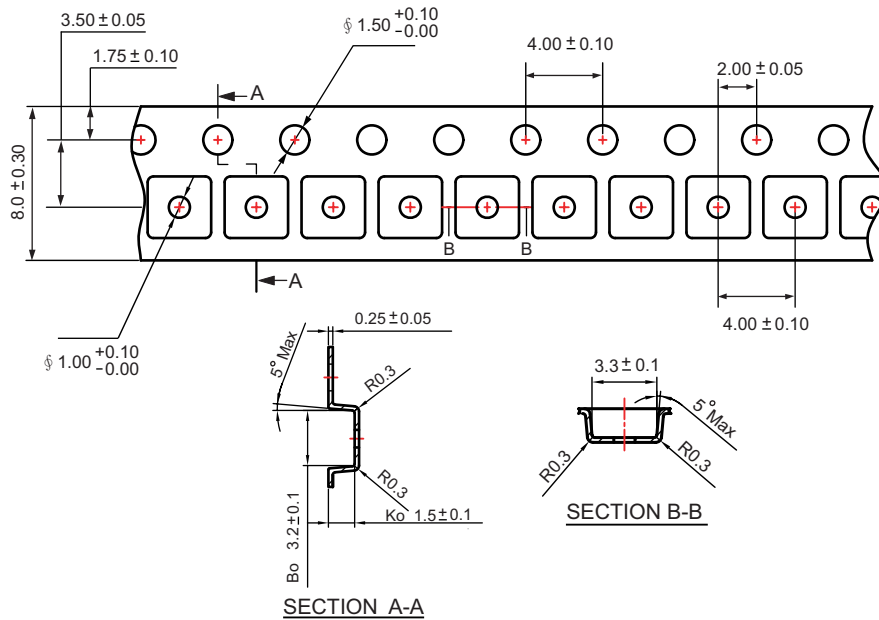


SYMBOL	MIN.	NOM.	MAX.
A	—	—	1.45
A1	—	—	0.15
A2	0.90	1.15	1.30
b	0.30	—	0.50
c	0.08	—	0.22
D	2.90 BSC.		
E	2.80 BSC.		
E1	1.60 BSC.		
e	0.95 BSC.		
e1	1.90 BSC.		
L	0.30	0.45	0.60
L1	0.60 REF.		
L2	0.25 BSC.		
R	0.10	—	—
R1	0.10	—	0.25
\varnothing	0°	4°	8°
$\varnothing 1$	5°	10°	15°

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SOT 26 Tape and Reel Data

SOT 26 Carrier Tape



SOT 26 Reel

