SamHop Microelectronics Corp.

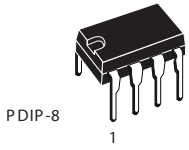
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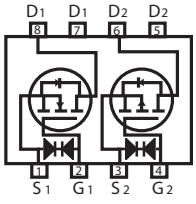
Nov. 22, 2006

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

PRODUCT SUMMARY (N-Channel)		
V_{DSS}	I_D	$R_{DS(ON)}$ (m Ω) Max
30V	7.6A	23 @ V_{GS} = 10V
		30 @ V_{GS} = 4.5V

PRODUCT SUMMARY (P-Channel)		
V_{DSS}	I_D	$R_{DS(ON)}$ (m Ω) Max
-30V	-6.6A	35 @ V_{GS} = -10V
		55 @ 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] @ Ta	25°C	I_D	7.6	-6.6	A
	70°C		6	5.3	A
-Pulsed [b]		I_{DM}	30	28	A
Drain-Source Diode Forward Current [a]		I_S	1.7	-1.7	A
Maximum Power Dissipation [a]	Ta= 25°C	P_D	3		W
	Ta=70°C		2		
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150		°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient [a]	$R_{\theta JA}$	41.5	°C/W

STA6611

N-Channel ELECTRICAL CHARACTERISTICS (T_A = 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			±10	uA
ON CHARACTERISTICS [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1.0	1.7	3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=7A		17	23	m ohm
		V_{GS}=4.5V, I_D=5A		23	30	m ohm
On-State Drain Current	$I_{D(ON)}$	V_{DS}=15V, V_{GS}=10V	20			A
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=7A		15		S
DYNAMIC CHARACTERISTICS [c]						
Input Capacitance	C_{ISS}	V_{DS}=15V, V_{GS}=0V f=1.0MHz		620		pF
Output Capacitance	C_{OSS}			190		pF
Reverse Transfer Capacitance	C_{RSS}			115		pF
SWITCHING CHARACTERISTICS [c]						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD}=15V, I_D=7A, RL=2.1 ohm, V_{GS}=10V, R_{GEN}=6 ohm		13		ns
Rise Time	t_r			14.4		ns
Turn-Off Delay Time	$t_{D(OFF)}$			40		ns
Fall Time	t_f			8.4		ns
Total Gate Charge	Q_g	V_{DS}=15V, I_D=7A, V_{GS}=10V		13		nC
		V_{DS}=15V, I_D=7A, V_{GS}=4.5V		6.8		nC
Gate-Source Charge	Q_{gs}	V_{DS}=15V, I_D=7A, V_{GS}=10V		1.5		nC
Gate-Drain Charge	Q_{gd}			3.5		nC

STA6611

P-Channel ELECTRICAL CHARACTERISTICS (T_A=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			±10	uA
ON CHARACTERISTICS [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1	-1.9	-3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D= -6A		28	35	m ohm
		V_{GS}=-4.5V, I_D= -4A		44	55	m ohm
On-State Drain Current	$I_{D(ON)}$	V_{DS}=-15V, V_{GS}=-10V	-20			A
Forward Transconductance	g_{FS}	V_{DS}=-15V, I_D=-6A		9.5		S
DYNAMIC CHARACTERISTICS [c]						
Input Capacitance	C_{ISS}	V_{DS}=-15V, V_{GS}=0V f=1.0MHz		850		pF
Output Capacitance	C_{OSS}			205		pF
Reverse Transfer Capacitance	C_{RSS}			105		pF
SWITCHING CHARACTERISTICS [c]						
Turn-On Delay Time	$t_{D(ON)}$	V_D=-15V, R_L=15 ohm, I_D=-1A, V_{GEN}=-10V, R_{GEN}=6 ohm		12.5		ns
Rise Time	t_r			17.5		ns
Turn-Off Delay Time	$t_{D(OFF)}$			66		ns
Fall Time	t_f			27		ns
Total Gate Charge	Q_g	V_{DS}=-15V,I_D=-6A,V_{GS}=-10V		15		nC
		V_{DS}=-15V,I_D=-6A,V_{GS}=-4.5V		7.5		nC
Gate-Source Charge	Q_{gs}	V_{DS}=-15V, I_D=-6A, V_{GS}=-10V		1.7		nC
Gate-Drain Charge	Q_{gd}			4.5		nC

STA6611

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Condition		Min	Typ [c]	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS [b]							
Diode Forward Voltage	V_{SD}	V_{GS} = 0V, Is =1.7A	N-Ch		0.8	1.2	V
		V_{GS} = 0V, Is =-1.7A	P-Ch		-0.8	-1.2	

Notes

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

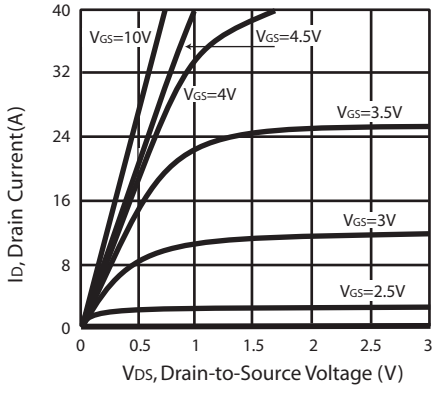


Figure 1. Output Characteristics

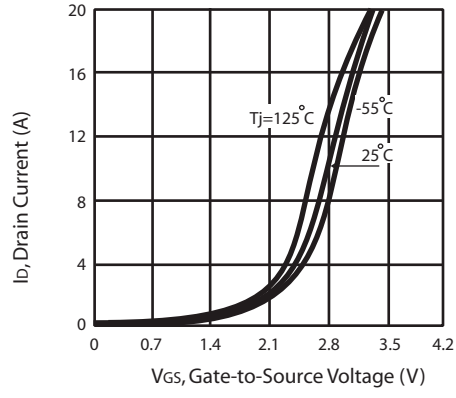


Figure 2. Transfer Characteristics

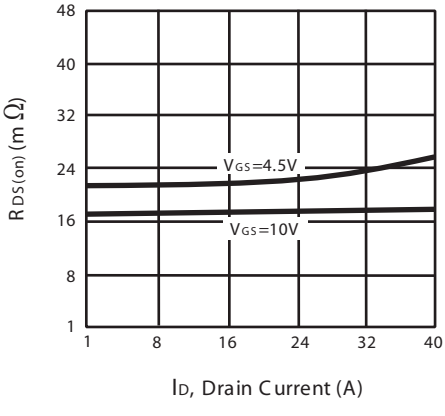


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

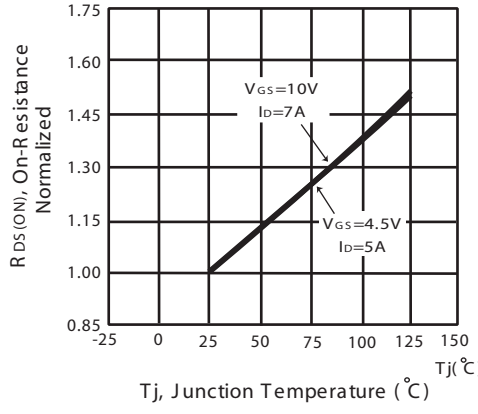


Figure 4. On-Resistance Variation with Drain Current and Temperature

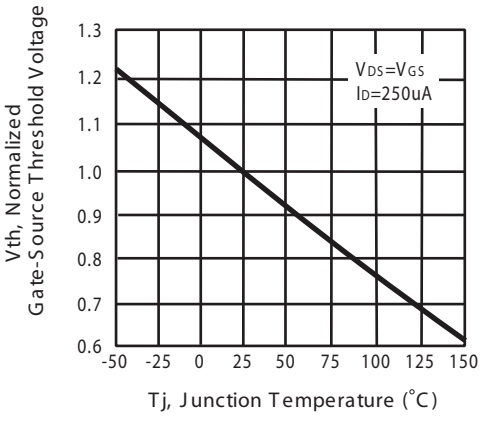


Figure 5. Gate Threshold Variation with Temperature

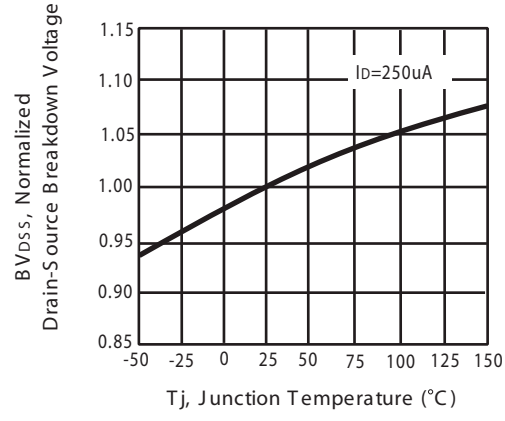


Figure 6. Breakdown Voltage Variation with Temperature

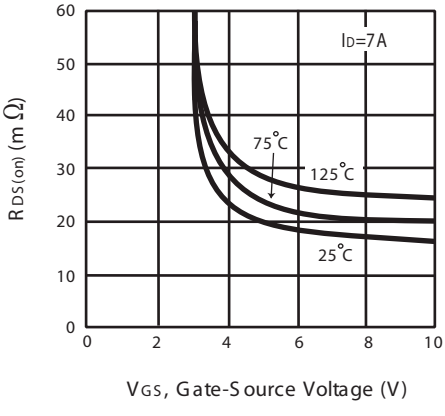


Figure 7. On-Resistance vs. Gate-Source Voltage

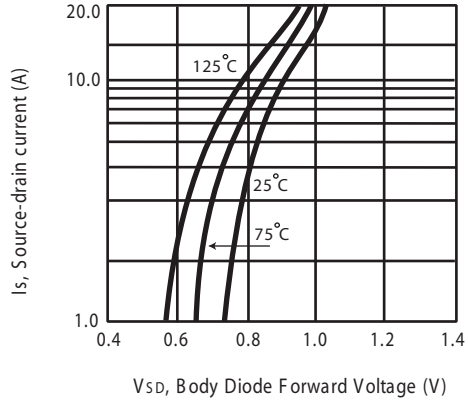


Figure 8. Body Diode Forward Voltage Variation with Source Current

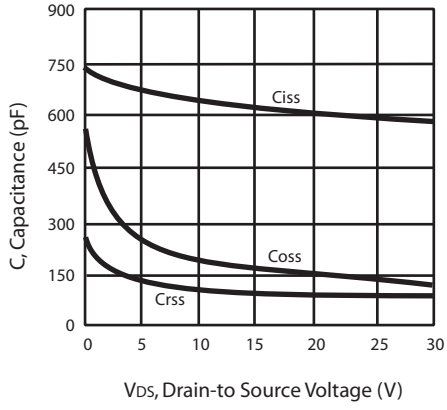


Figure 8. Capacitance

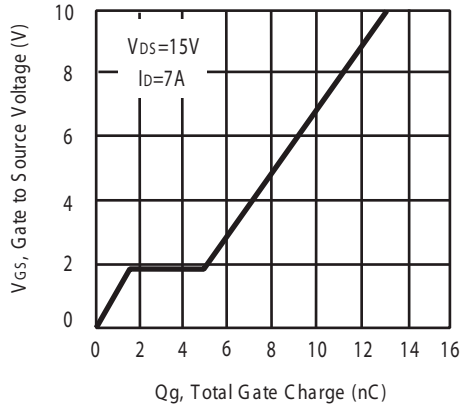


Figure 9. Gate Charge

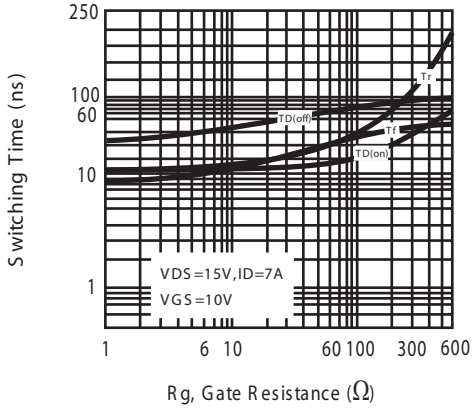


Figure 11.switching characteristics

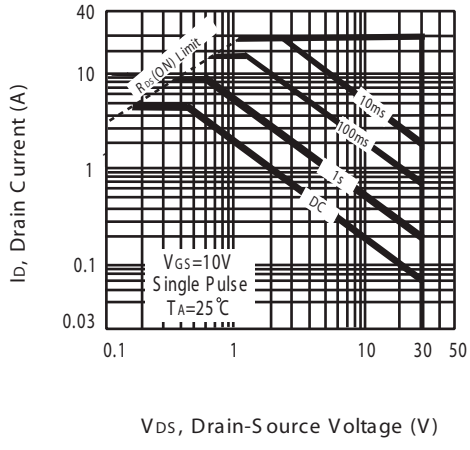
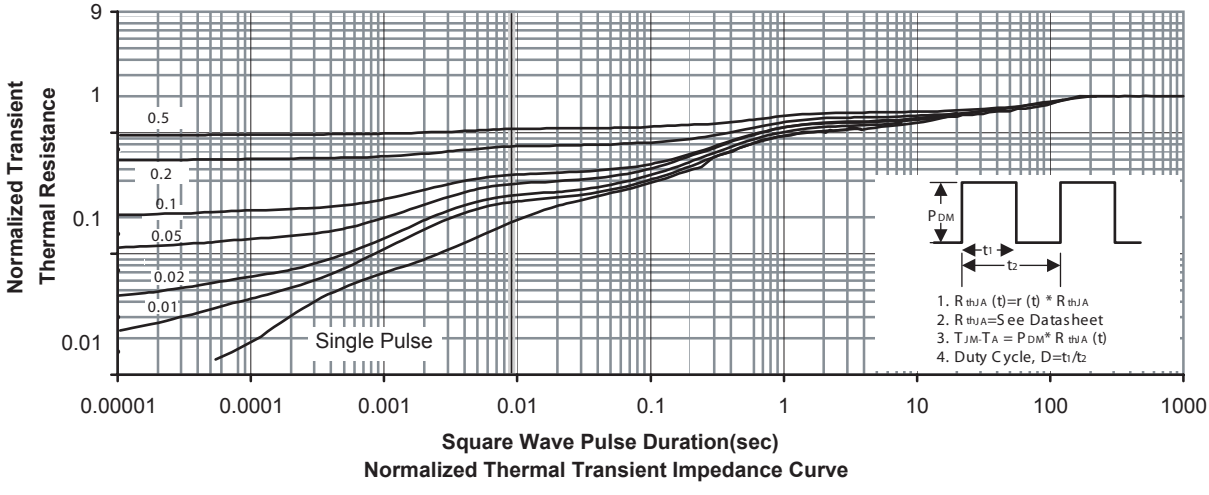


Figure 10. Maximum Safe Operating Area



Normalized Thermal Transient Impedance Curve

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P-Channel

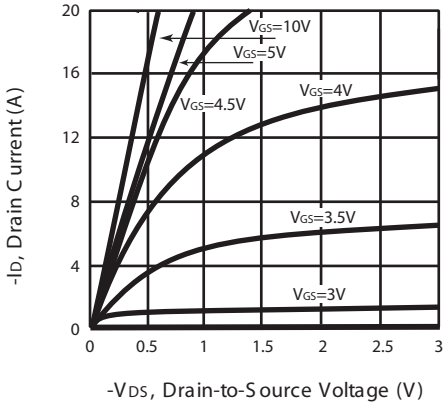


Figure 1. Output Characteristics

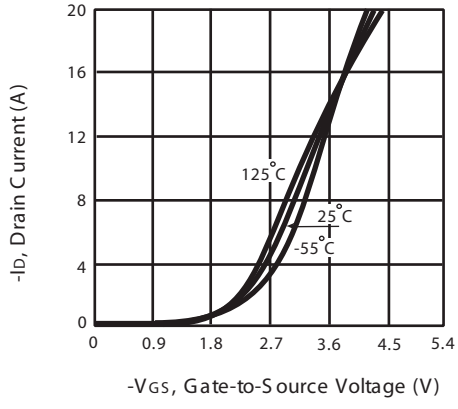


Figure 2. Transfer Characteristics

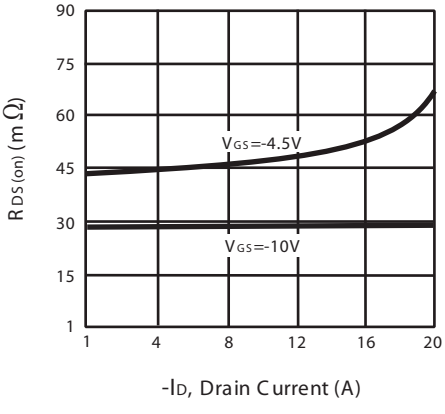


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

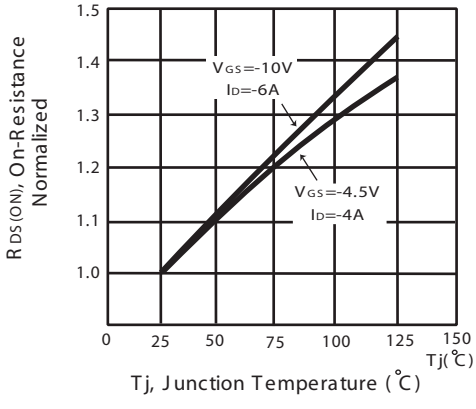


Figure 4. On-Resistance Variation with Drain Current and Temperature

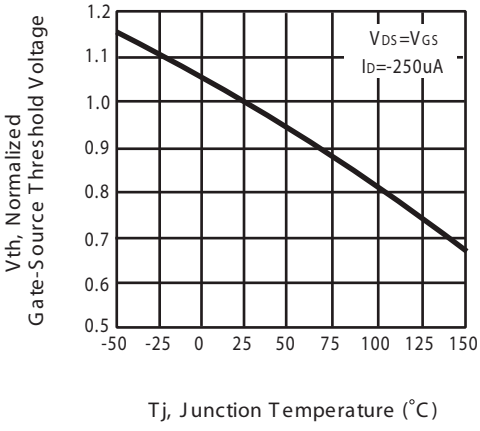


Figure 5. Gate Threshold Variation with Temperature

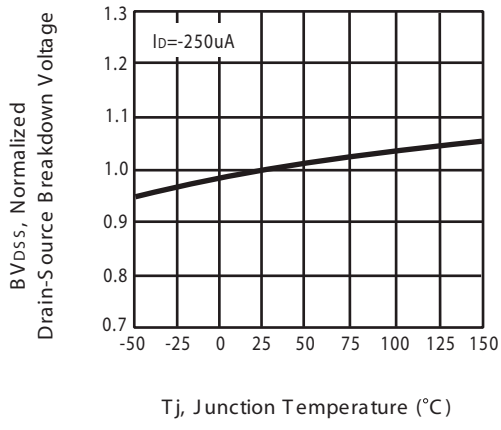


Figure 6. Breakdown Voltage Variation with Temperature

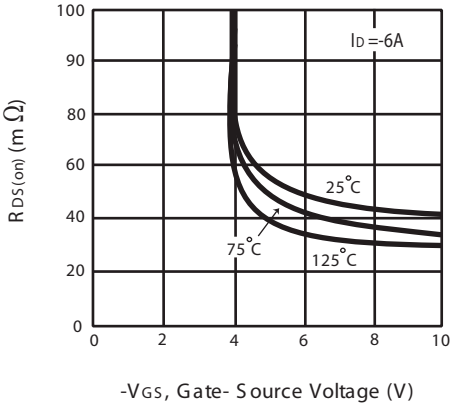


Figure 7. On-Resistance vs. Gate-Source Voltage

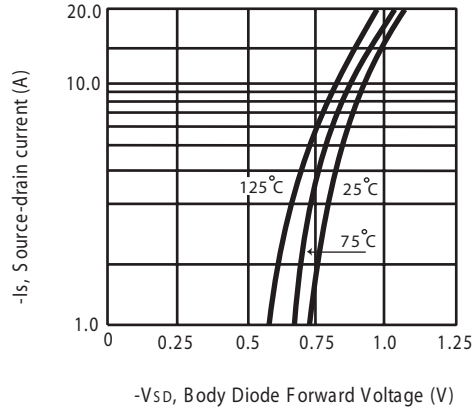


Figure 8. Body Diode Forward Voltage Variation with Source Current

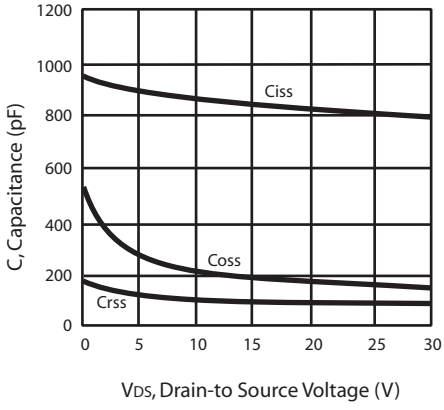


Figure 8. Capacitance

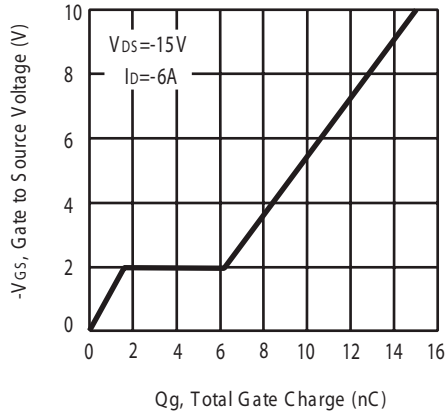


Figure 9. Gate Charge

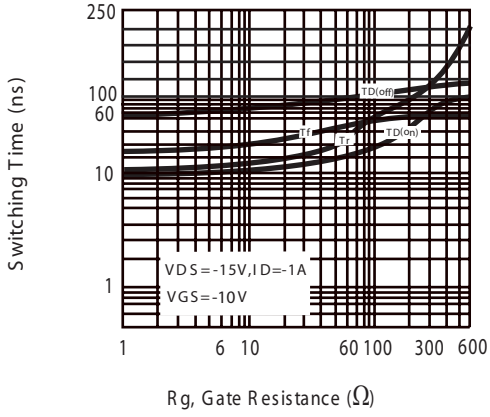


Figure 11.switching characteristics

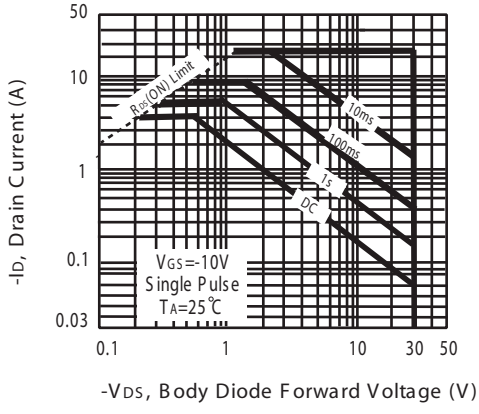
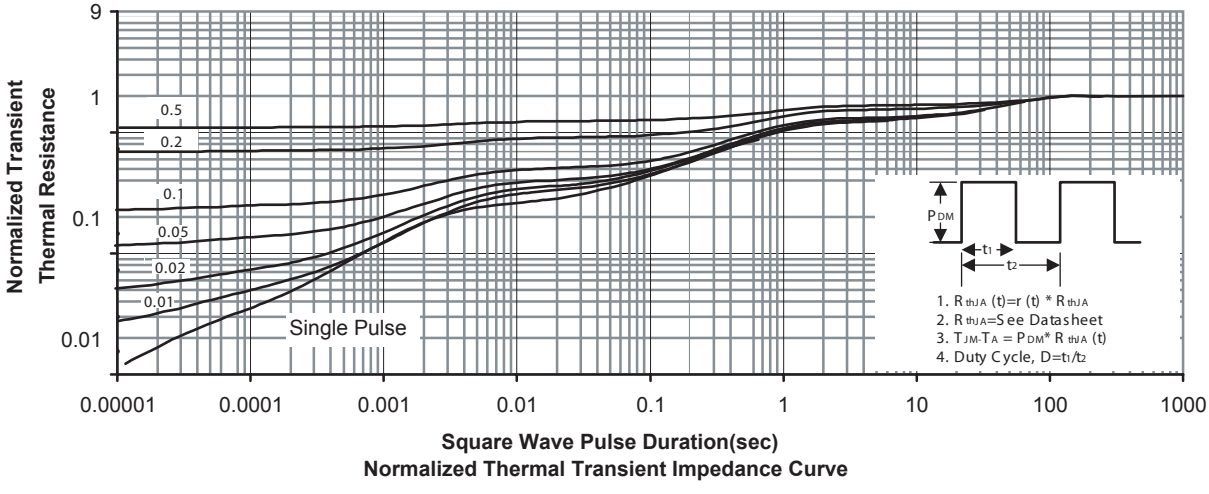


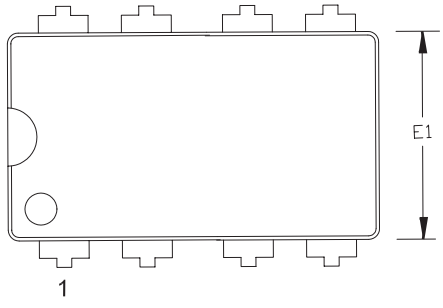
Figure 10. Maximum Safe Operating Area



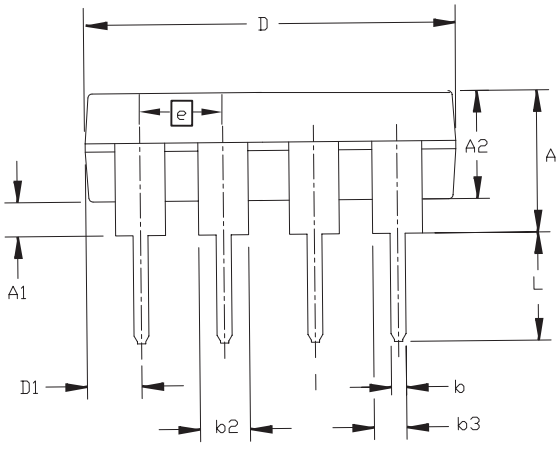
Normalized Thermal Transient Impedance Curve

PACKAGE OUTLINE DIMENSIONS

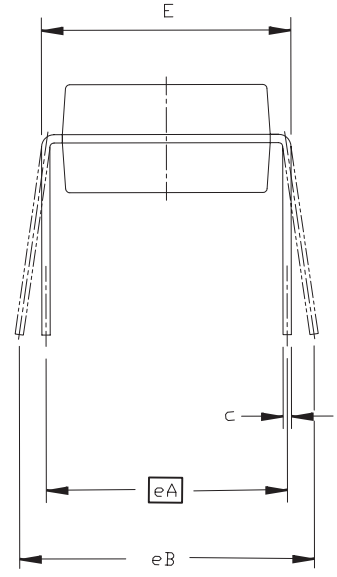
PDIP 8



TOP VIEW



FRONT VIEW



SIDE VIEW

	INCHES			MILLIMETERS		
SYMBOL	MIN	NOM	MAX	MIN	NOM	MAX
A	.145	.172	.200	3.68	4.37	5.08
A1	.020	-	-	0.51	-	-
A2	.125	.130	.135	3.18	3.30	3.43
b	.015	.018	.021	0.38	0.46	0.53
c	.009	.012	.014	0.23	0.30	0.36
b2	.045	.060	.070	1.14	1.52	1.78
b3	.030	.039	.045	0.76	0.99	1.14
L	.125	.132	.140	3.18	3.35	3.56
e	.090	.100	.110	2.29	2.54	2.79
D	.373	.386	.400	9.47	9.80	10.16
D1	.030	.045	.060	0.76	1.14	1.52
E	.300	.310	.320	7.62	7.87	8.13
E1	.245	.250	.255	6.22	6.35	6.48
eA	.280	-	-	7.11	-	-
eB	.310	.325	.365	7.87	8.26	9.27