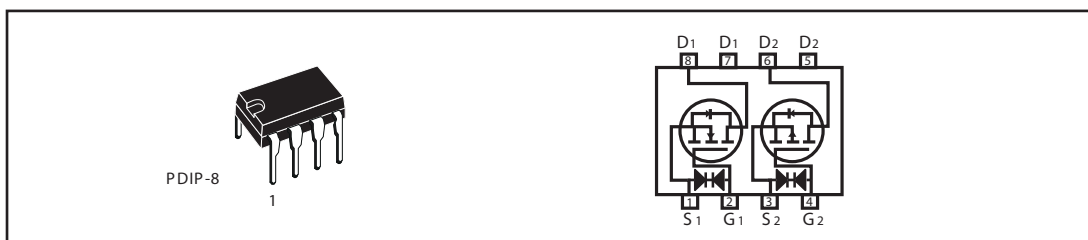




Dual Enhancement Mode Field Effect Transistor (N and P Channel)

PRODUCT SUMMARY (N-Channel)		
VDSS	ID	RDS(ON) (mΩ) Max
30V	7.6A	23 @ V _{GS} = 10V
		30 @ V _{GS} = 4.5V

PRODUCT SUMMARY (P-Channel)		
VDSS	ID	RDS(ON) (mΩ) 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 @ T _a	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	T _a = 25°C	P _D	3		W
	T _a =70°C		2		
Operating Junction and S torage Temperature Range		T _J , T _{STG}	-55 to 150		°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R _{θJA}	41.5	°C/W
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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-S tate 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, R _L =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

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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-S tate 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

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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}	$V_{GS} = 0\text{V}, I_S = 1.7\text{A}$	N-Ch	0.8	1.2	V
		$V_{GS} = 0\text{V}, I_S = -1.7\text{A}$	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

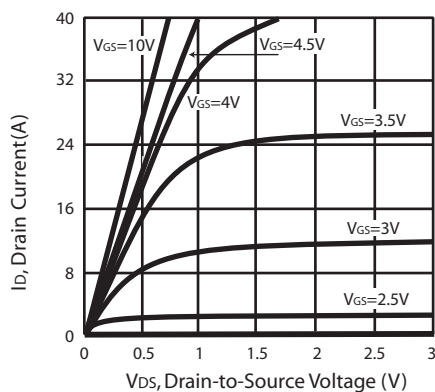


Figure 1. Output Characteristics

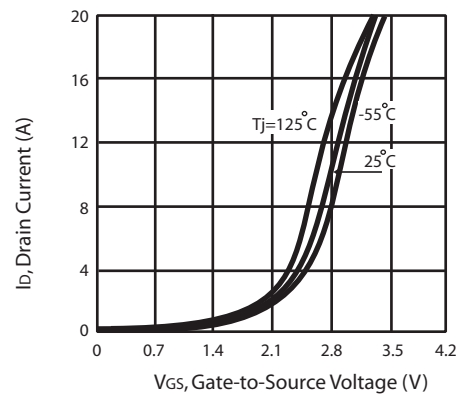


Figure 2. Transfer Characteristics

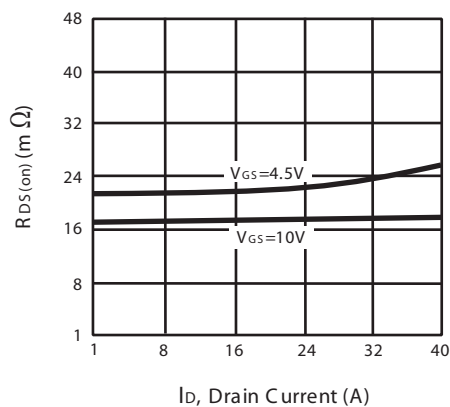


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

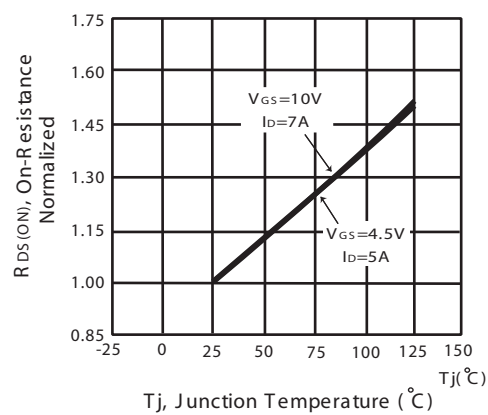


Figure 4. On-Resistance Variation with Drain Current and Temperature

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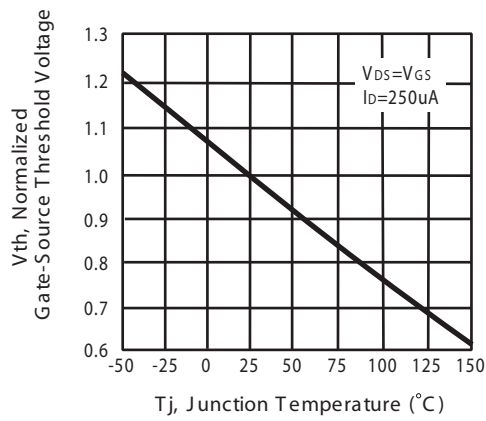


Figure 5. Gate Threshold Variation with Temperature

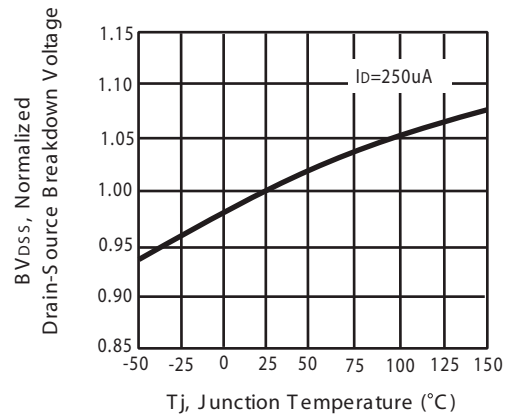


Figure 6. Breakdown Voltage Variation with Temperature

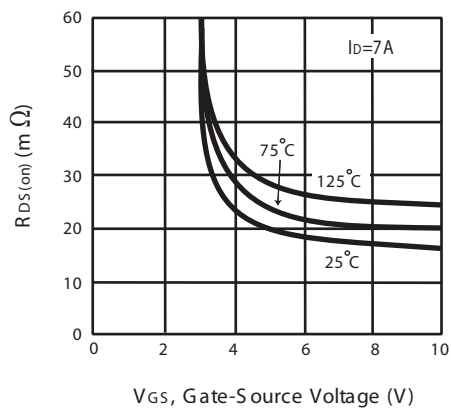


Figure 7. On-Resistance vs. Gate-Source Voltage

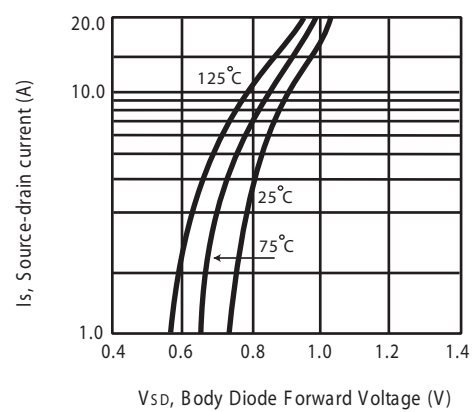
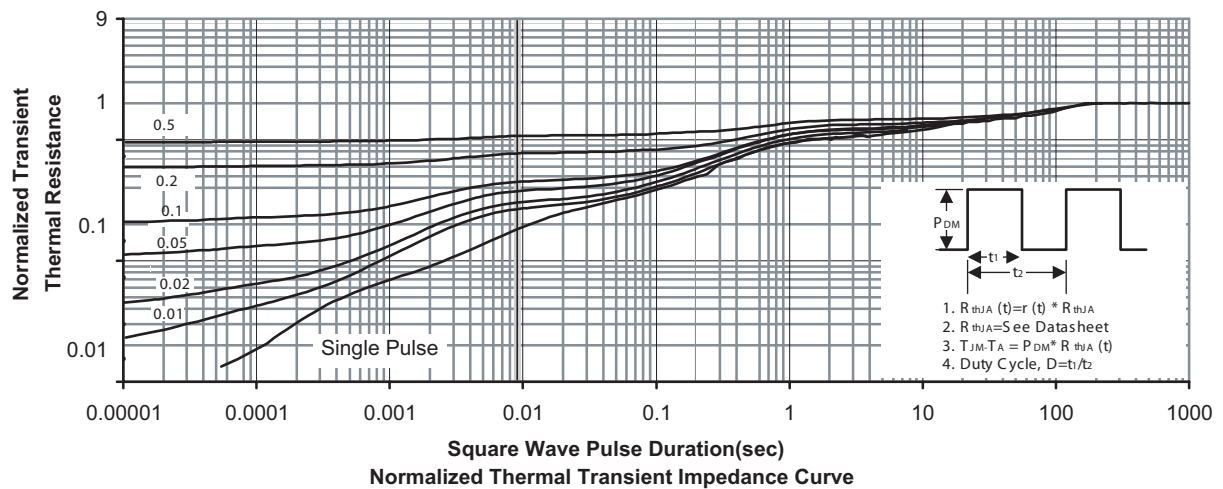
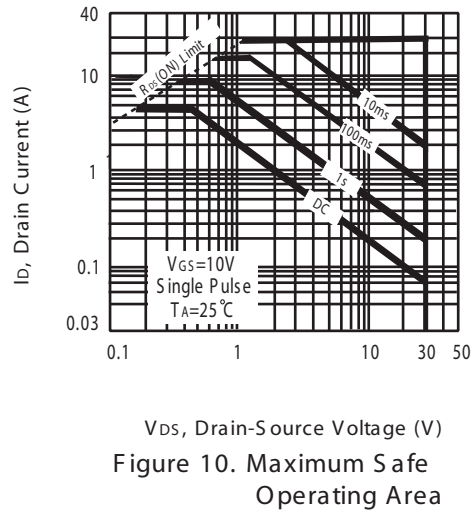
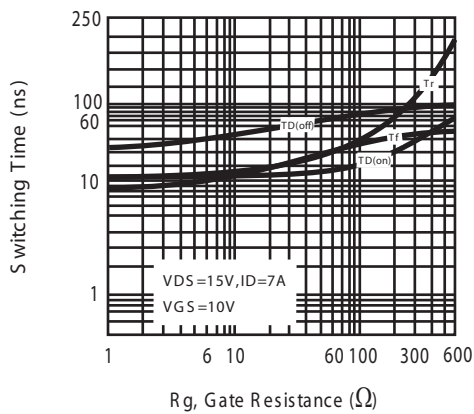
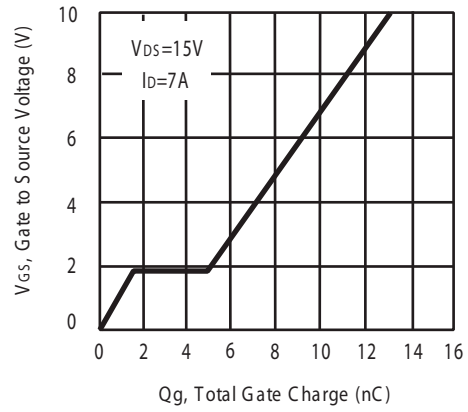
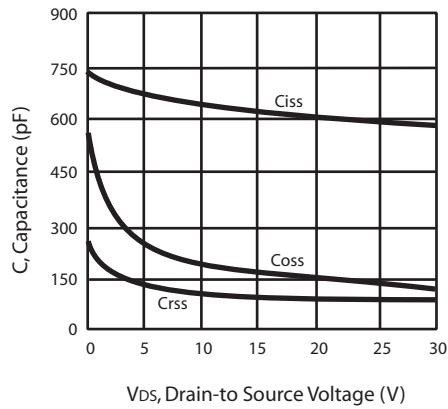


Figure 8. Body Diode Forward Voltage Variation with Source Current

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P-Channel

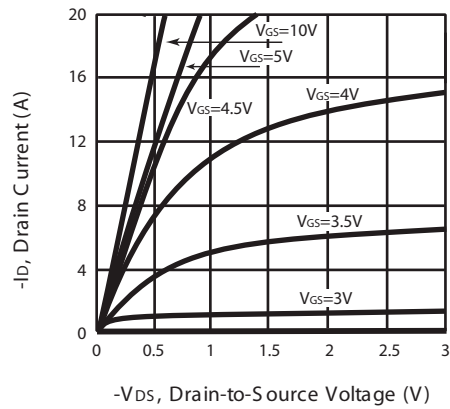


Figure 1. Output Characteristics

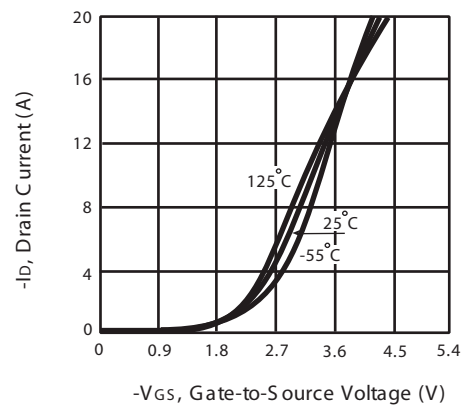


Figure 2. Transfer Characteristics

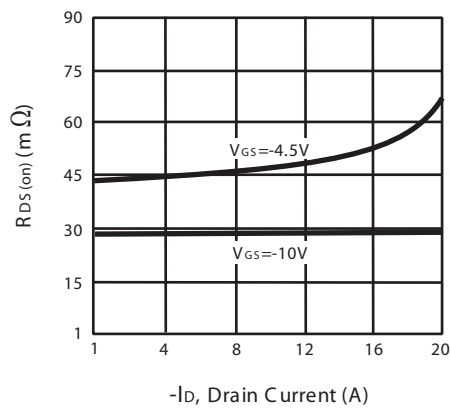


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

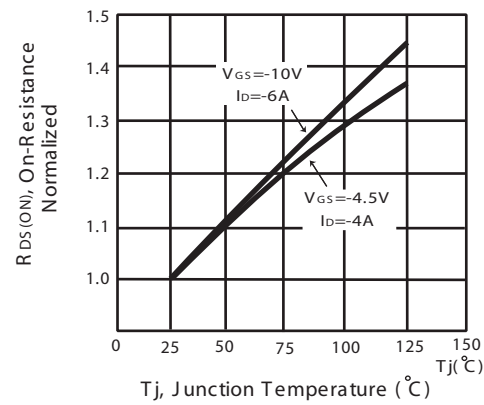


Figure 4. On-Resistance Variation with Drain Current and Temperature

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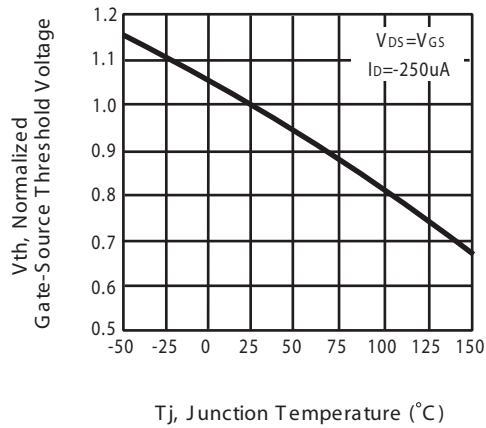


Figure 5. Gate Threshold Variation with Temperature

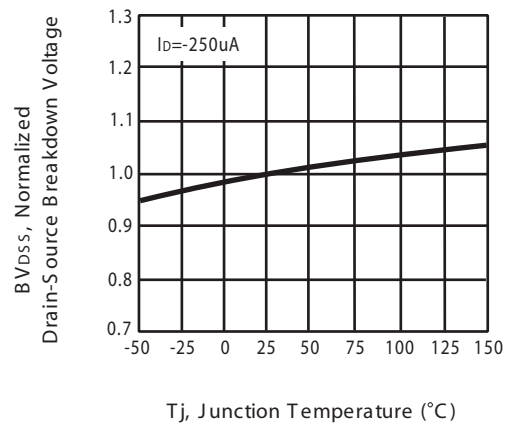


Figure 6. Breakdown Voltage Variation with Temperature

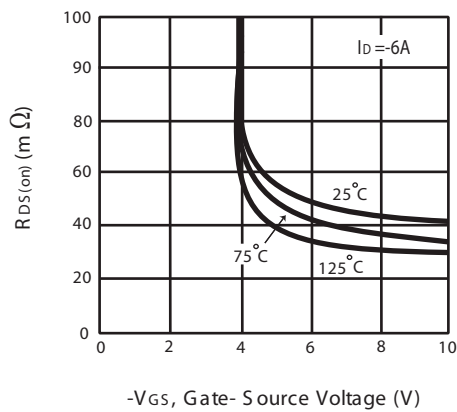


Figure 7. On-Resistance vs. Gate-Source Voltage

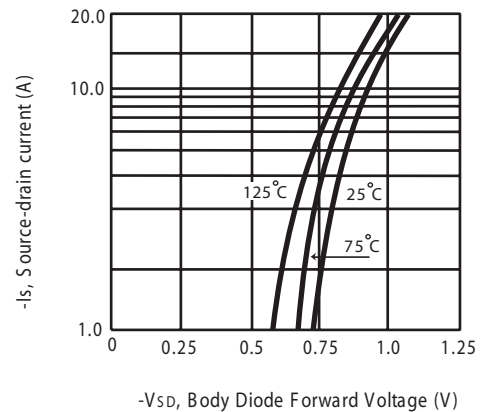
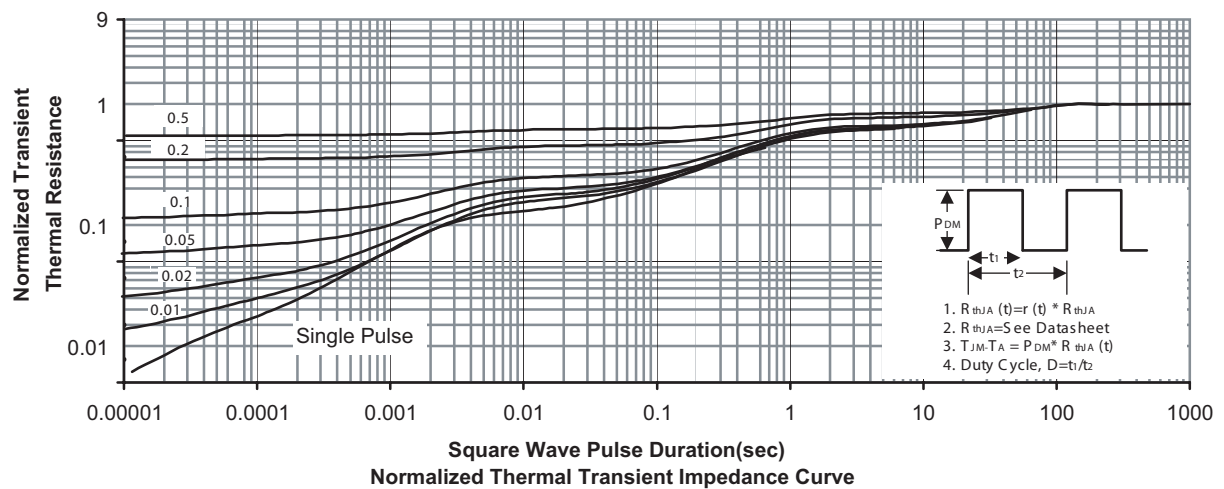
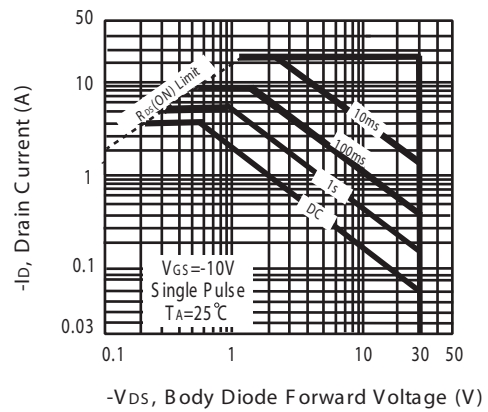
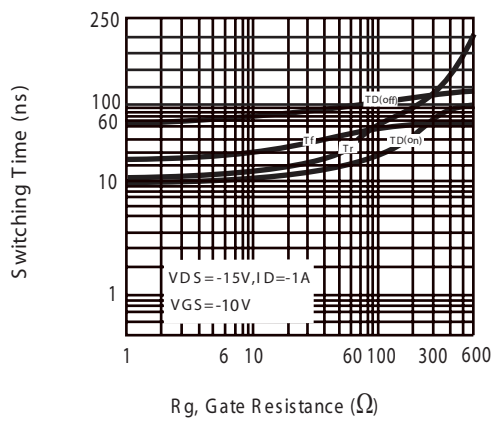
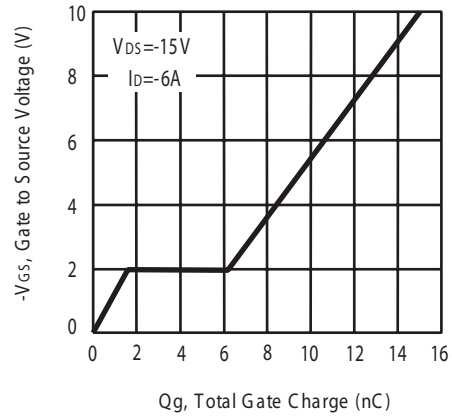
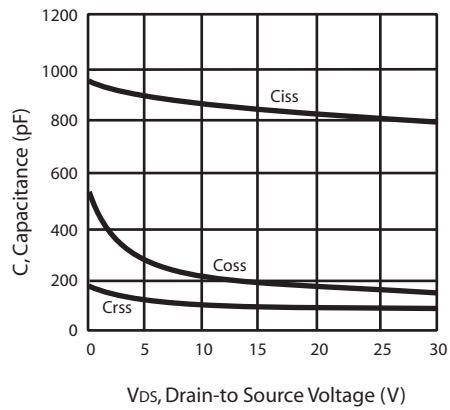


Figure 8. Body Diode Forward Voltage Variation with Source Current

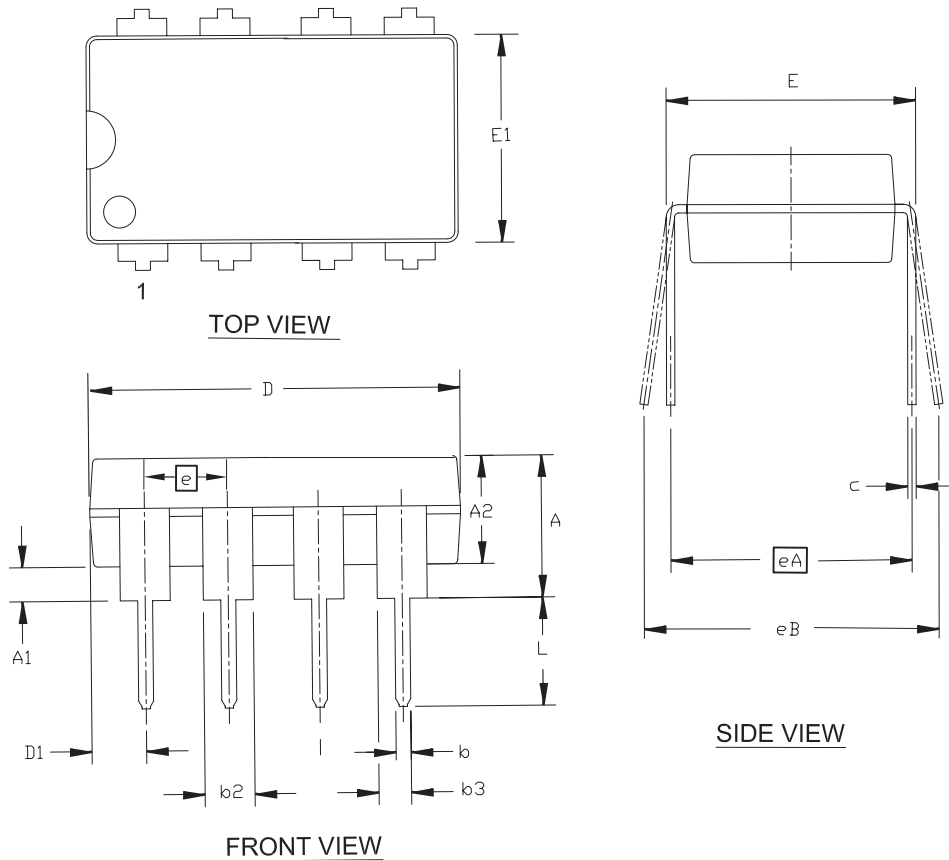
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PACKAGE OUTLINE DIMENSIONS

PDIP 8



SYMBOL	INCHES			MILLIMETERS		
	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