/ Descriptions

SOP-8 MOS

Complementary Enhancement MOSFET in a SOP-8 Plastic Package.

/ Features

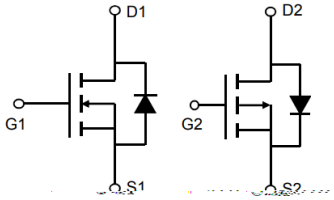
N-channel	P-channel
V_{DS}(V)=40V	V_{DS}(V)=-40V
I_D=8A(T_C=25)	I_D=-7A(T_C=25)

HF Product.

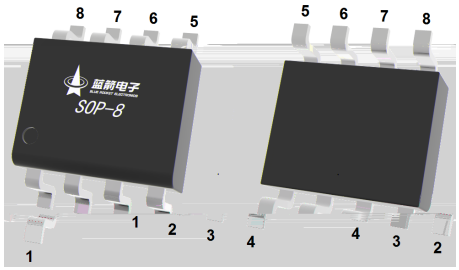
/ Applications

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies. And suitable for use as a load switch or in PWM applications.

/ Equivalent Circuit



/ Pinning



PIN1	S1	PIN 2	G1	PIN 3	S2	PIN 4	G2
PIN 5	D2	PIN 6	D2	PIN 7	D1	PIN 8	D1

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol		Rating		Unit
			N-channel	P-channel	
Drain-Source Voltage	V_{DSS}		40	-40	V
Gate-Source Voltage	V_{GSS}		±20		V
Continuous Drain Current	I_D (T_C=25℃)		8	-7	A
Continuous Drain Current	I_D (T_A=25℃)		6	-5	A
Pulsed Drain Current	I_{DM}		20	-20	A
Power Dissipation	P_D (T_C=25)		3.5	3.5	W
Power Dissipation	P_D (T_A=25)		2	2	W
Maximum Junction-to-Ambient	$R_{\theta JA}$	t≤10s	62.5		/W
	$R_{\theta JA}$	Steady-State	110		/W
Maximum Junction-to-Case	$R_{\theta JC}$	Steady-State	35.7		/W
Junction and Storage Temperature Range	T_J,T_{STG}		-55 to +150		

N- /N-CHANNEL Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	40	44		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V V_{GS}=0V			1.0	μA
		V_{DS}=40V V_{GS}=0V T_J=55℃			5.0	μA
Gate-Body leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.4	1.6	3.0	V
On state drain current	$I_{D(on)}$	V_{DS}=10V V_{GS}=5.0V	20			A
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=6A		17.5	25	mΩ
		V_{GS}=4.5V I_D=5.0A		22.8	45	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5.0V I_D=6.0A		14		S
Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1.0A		0.73	1.0	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		1200		pF
Output Capacitance	C_{oss}			310		pF
Reverse Transfer Capacitance	C_{rss}			65		pF
Gate resistance	R_g	V_{DS}=0V V_{GS}=0V f=1.0MHz		9.5		
Total Gate Charge(10V)	Q_g	V_{GS}=10V V_{DS}=20V I_D=6A		8.3		nC
Total Gate Charge(4.5V)				4.2		nC
Gate-Source Charge	Q_{gs}			1.3		nC
Gate-Drain Charge	Q_{gd}			2.3		nC
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=20 V V_{GS}=10V R_L=3.3Ω R_{GEN}=3Ω		4.2		ns
Turn-On Rise Time	t_r			3.3		ns
Turn-Off Delay Time	$t_{d(off)}$			15.6		ns
Turn-Off Fall Time	t_f			3		ns

N- / N-CHANNEL Electrical Characteristic Curve

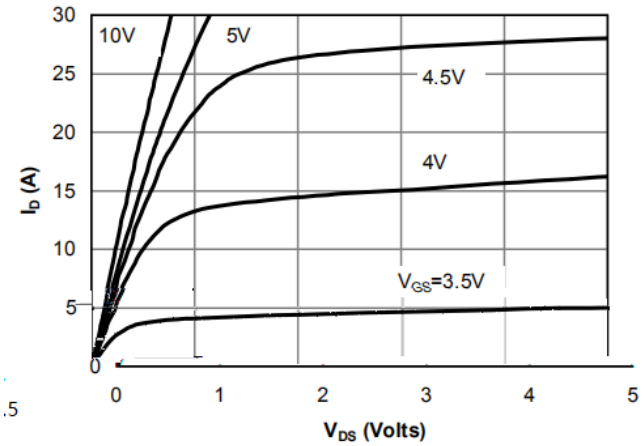


Fig 1: On-Region Characteristics

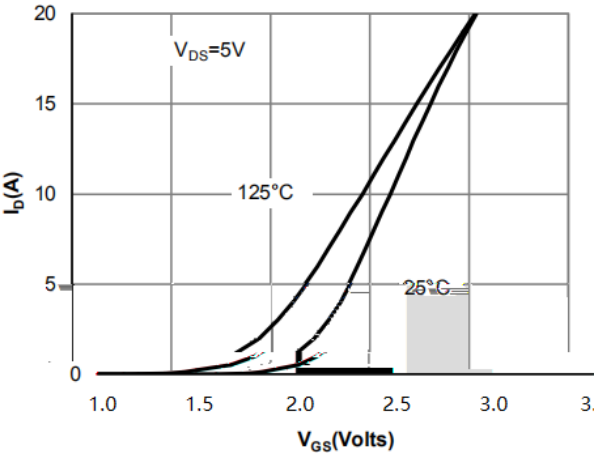


Figure 2: Transfer Characteristics

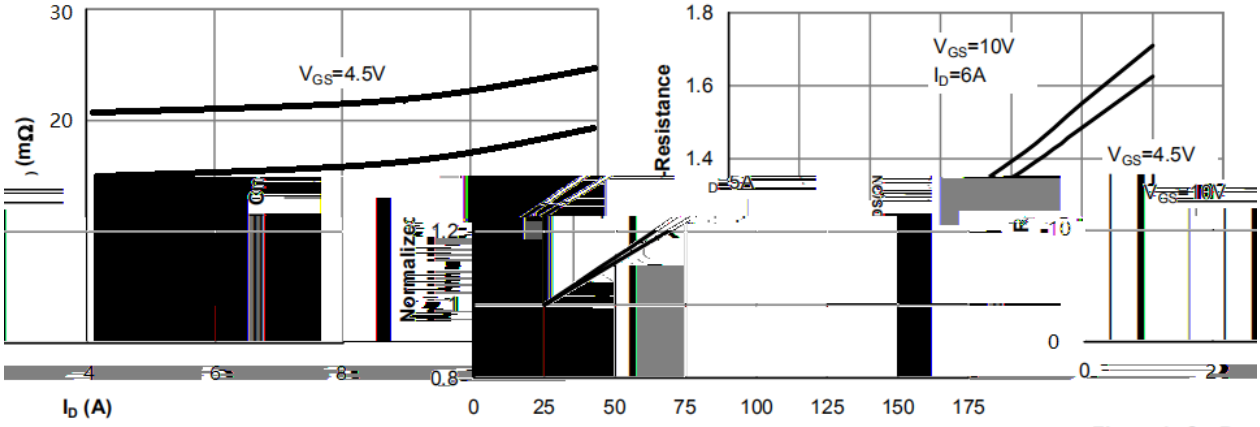


Figure 4: On-Resistance vs. Junction Temperature

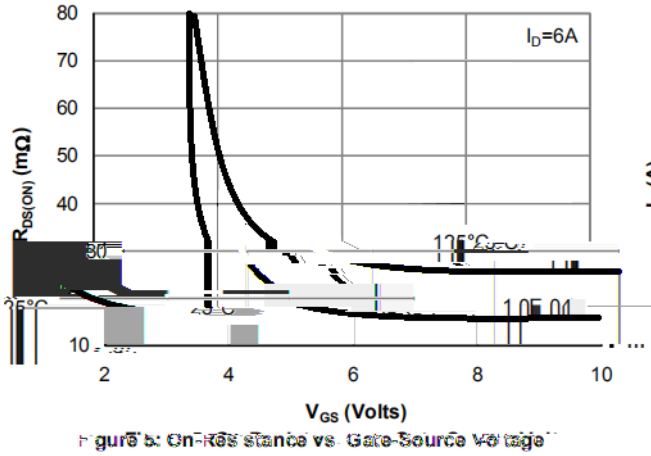


Figure 5: On-Resistance vs. Gate-Source Voltage

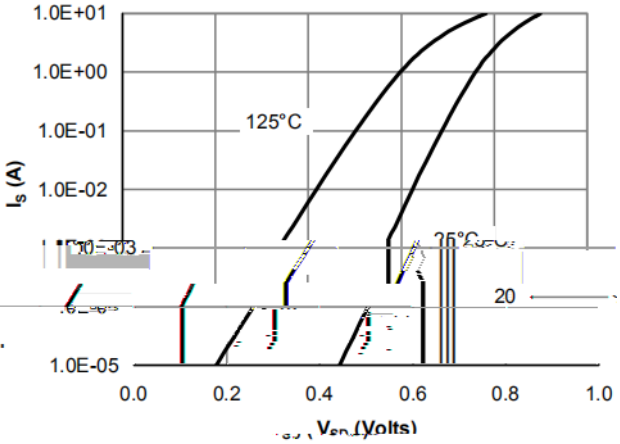
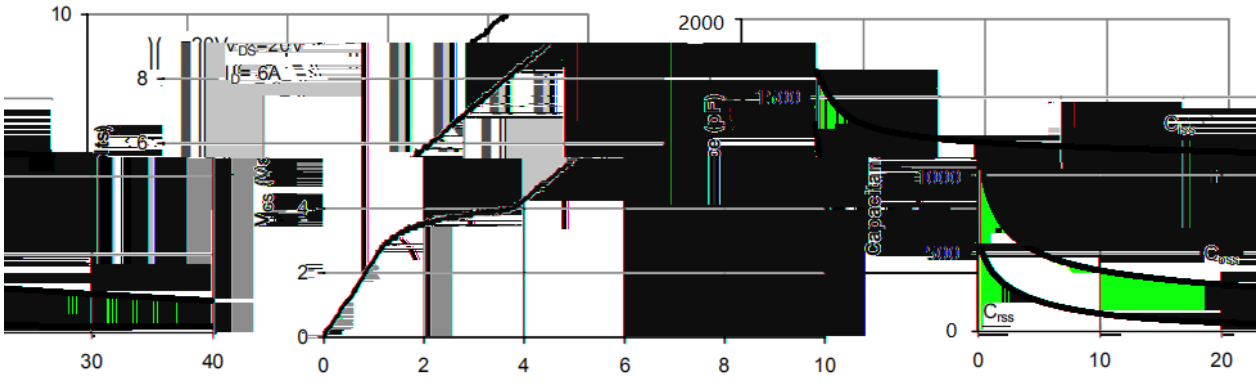


Figure 6: Body-Diode Characteristics

N- / N-CHANNEL Electrical Characteristic Curve



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Characteristics

Figure 7: Gate-Charge Characteristics

Figure 8: Capacitance

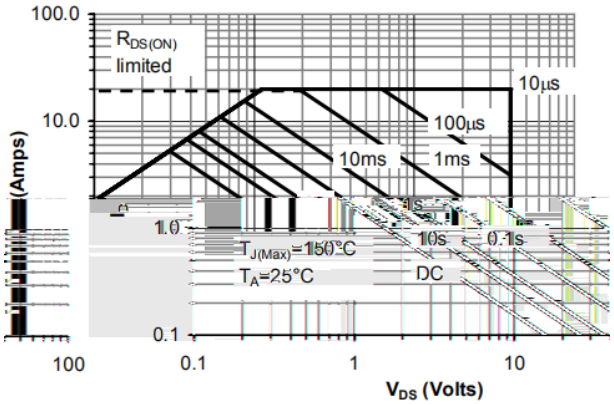


Figure 9 : Maximum Forward Biased Safe Operating Area

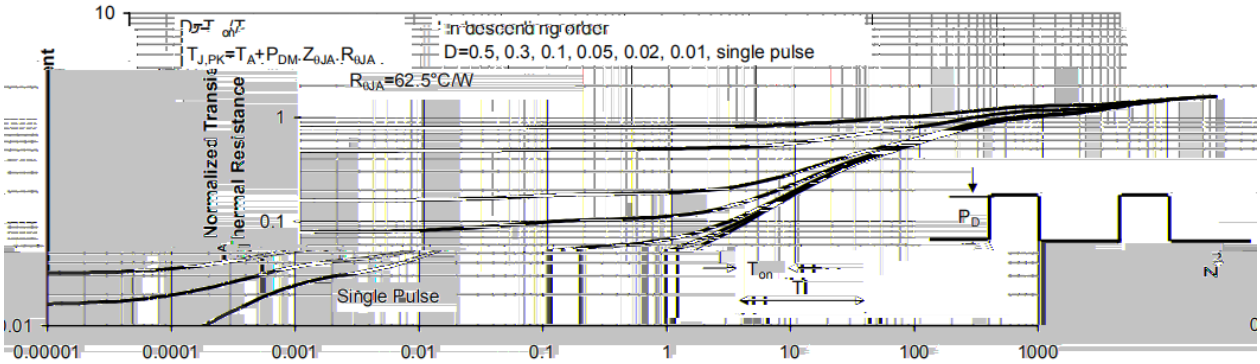
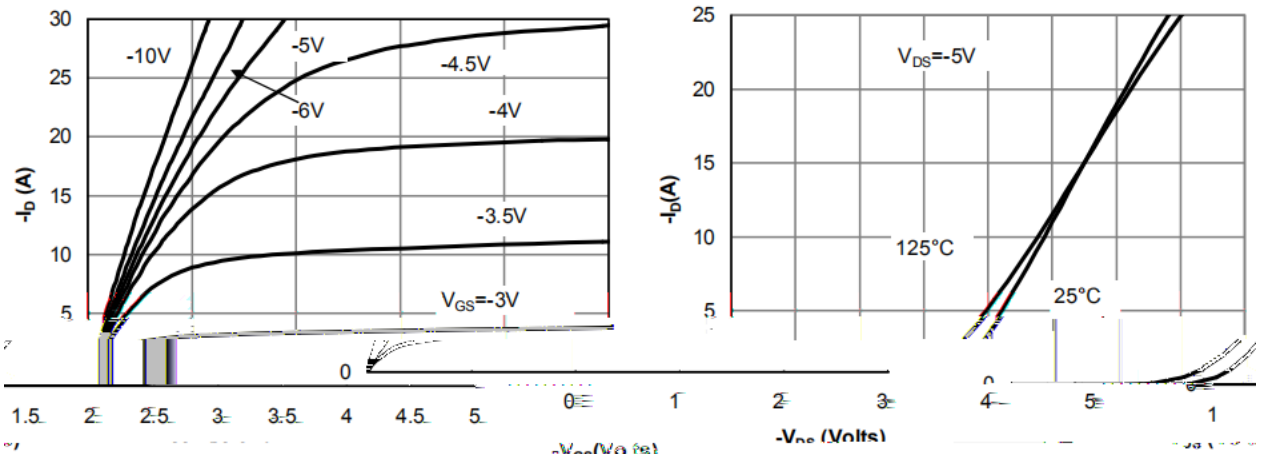


Figure 10 : Normalized Maximum Transient Thermal Impedance

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-40	-46		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-40V V_{GS}=0V			-1.0	μA
		V_{DS}=-40V V_{GS}=0V T_J=55℃			-5.0	μA
Gate-Body leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1.4	-1.6	-3.0	V
On state drain current	$I_{D(on)}$	V_{DS}=-5V V_{GS}=-10V	6			A
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V I_D=-5.0A		32	35	mΩ
		V_{GS}=-4.5V I_D=-2.0A		49	60	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5.0V I_D=-4.8A		13		S
Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=-1.0A		-0.76	-1.0	V
Input Capacitance	C_{iss}	V_{DS}=-25V V_{GS}=0V f=1.0MHz		710		pF
Output Capacitance	C_{oss}			61		pF
Reverse Transfer Capacitance	C_{rss}			14		pF
Gate resistance	R_g	V_{DS}=0V V_{GS}=0V f=1.0MHz		2.1		
Total Gate Charge(10V)	Q_g	V_{GS}=-10V V_{DS}=-20V I_D=-5.0A		13.6		nC

P– / P-CHANNEL Electrical Characteristic Curve



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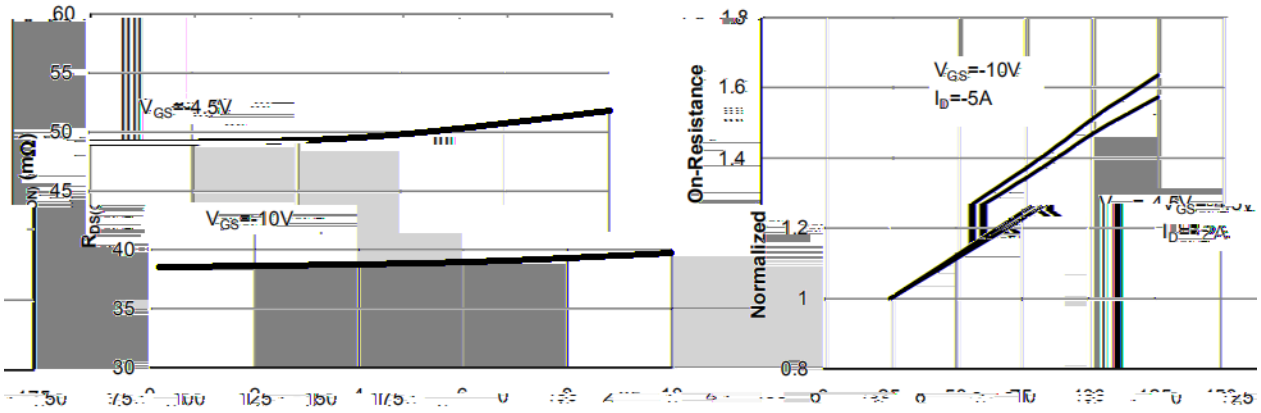
F'gure 2: Transfer Character'st'cs

F'g 1: On-Reg'on Ch



On-Resistance vs. Junction Temperature

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

Figure 4:

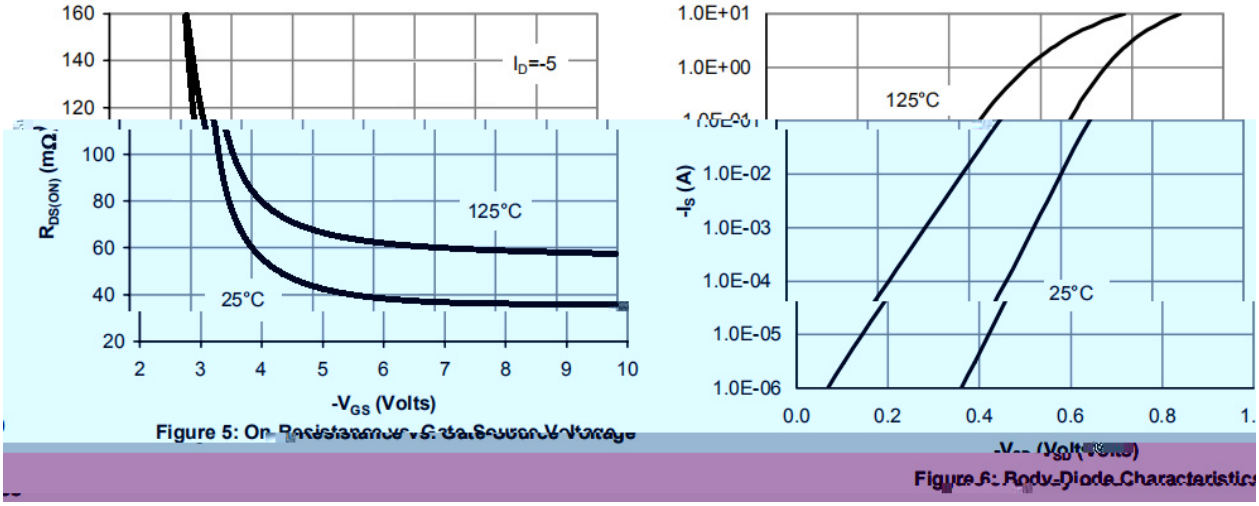


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

P– / P-CHANNEL Electrical Characteristic Curve

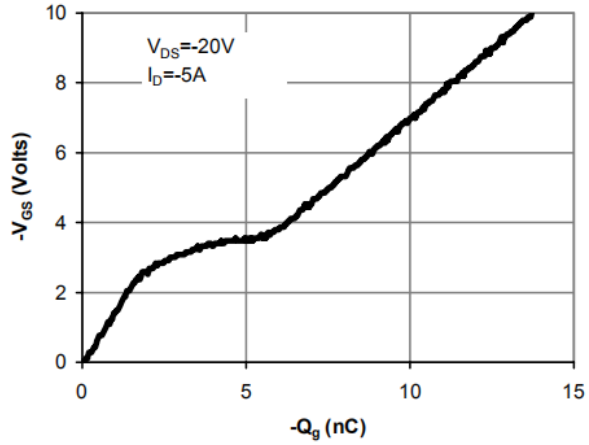


Figure 7: Gate-Charge Characteristics

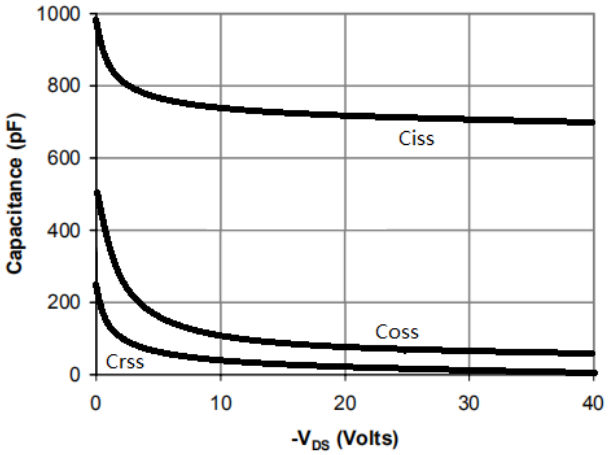


Figure 8: Capacitance Characteristics

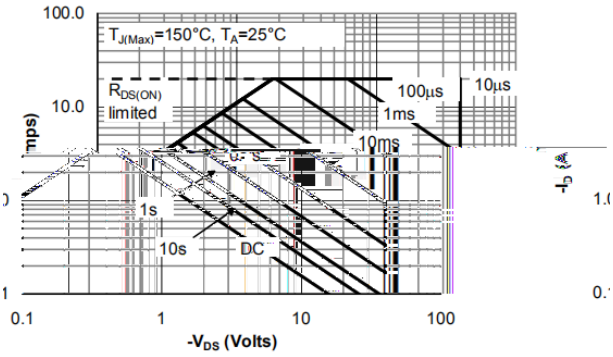
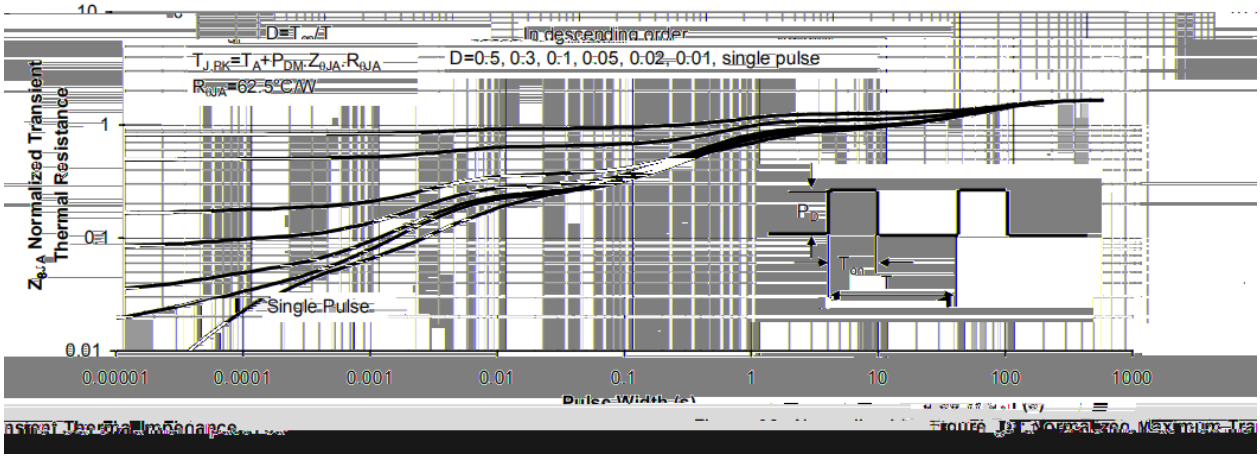
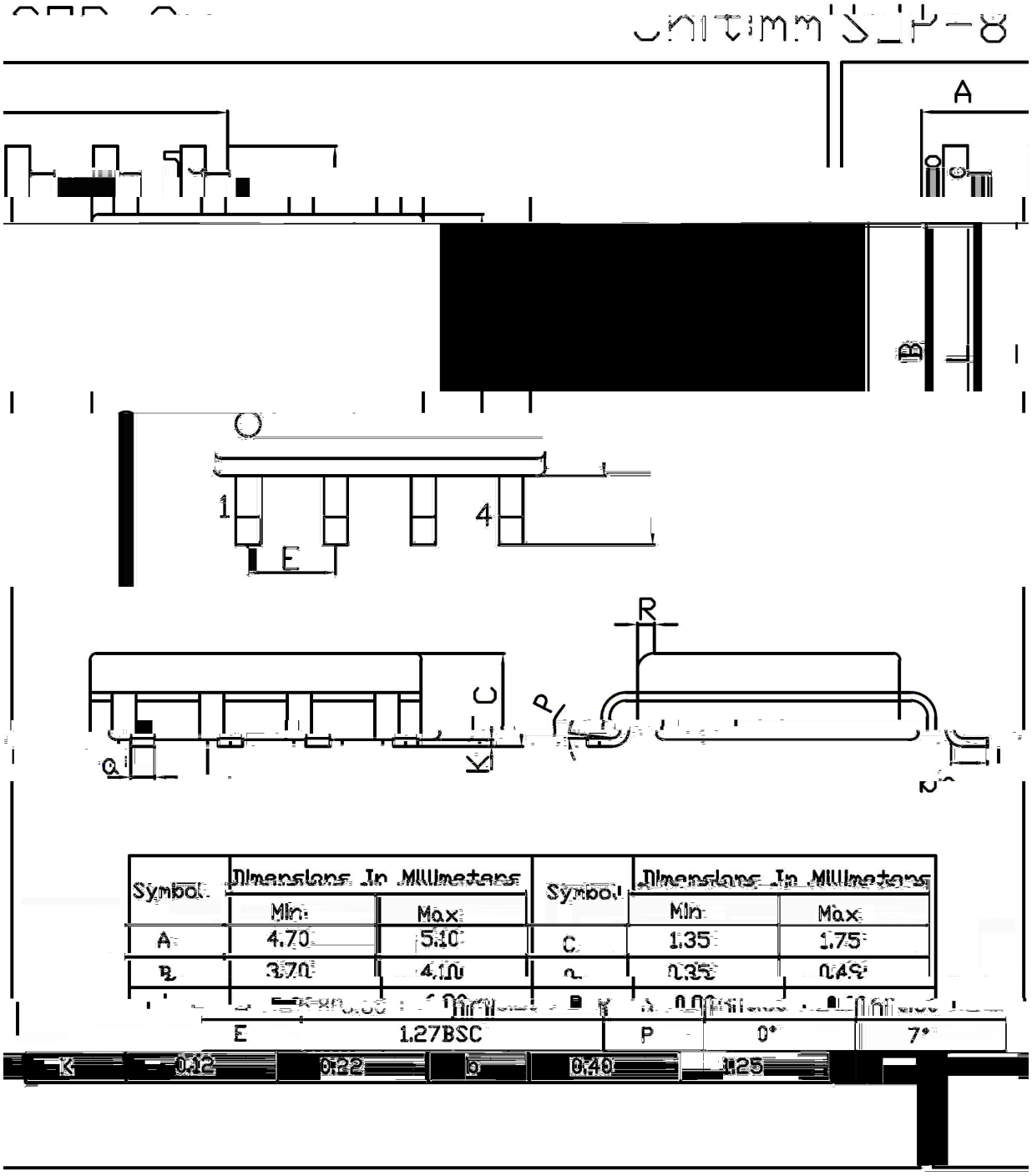


Figure 9 : Maximum Forward Biased Safe Operating Area

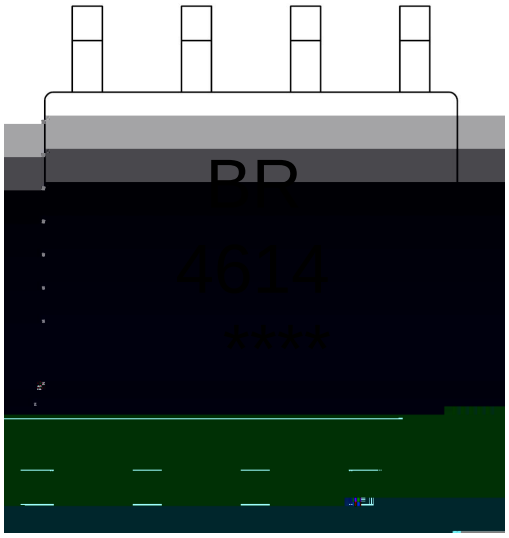


/ Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min.	Max.		Min.	Max.
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	Q	0.35	0.49
E	1.27BSC		P	0°	7°
K	0.12	0.22	b	0.40	1.25

/ Marking Instructions



BR

4614

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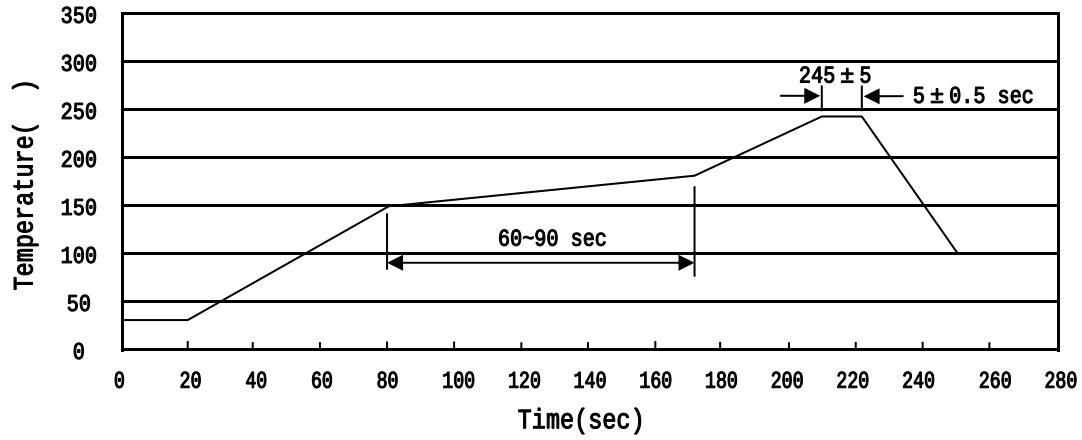
Note:

BR:	Company Code
4614:	Product Type Code
****:	Lot No. Code, code change with Lot No

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



		Note:
1	150 180 60 90sec;	1.Preheating:150~180 , Time:60~90sec.
2	245 5 5 0.5sec;	2.Peak Temp.:245 5 , Duration:5 0.5sec.
3	2 10 /sec.	3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260 5	10 1 sec.	Temp.:260±5	Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension		(unit mm³)
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
SOP/ESOP-8	4,000	2	8,000	6	48,000	13″ ×12	360×360×50	380×335×366

/ Notices