

/ Descriptions

SOP-8

MOS

Complementary Enhancement MOSFET in a SOP-8 Plastic Package.

/ Features

N-channel

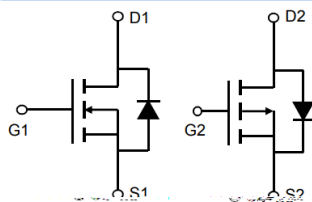
P-channel

 $V_{DS}(V)=30V$ $V_{DS}(V)=-30V$ $I_D=7.2A$ $I_D=-7A$ $R_{DS(ON)}<25m\Omega (V_{GS}=10V)$ $R_{DS(ON)}<25m\Omega (V_{GS}=-10V)$ $R_{DS(ON)}<35m\Omega (V_{GS}=4.5V)$ $R_{DS(ON)}<35m\Omega (V_{GS}=-4.5V)$

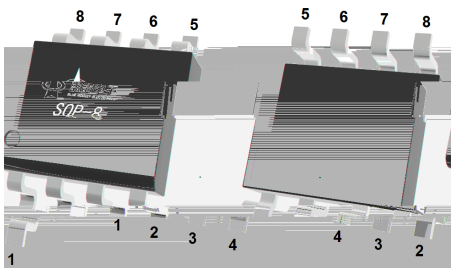
/ Applications

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($T_A=25^\circ\text{C}$)

Parameter	Symbol	Rating		Unit
		N-channel	P-channel	
Drain-Source Voltage	V_{DS}	± 30		V
Gate-Source Voltage	V_{GS}	± 20		V
Continuous Drain Current	$I_D (T_A=25^\circ\text{C})$	7.2	-7	A
Pulsed Drain Current	I_{DM}	± 40		A
Power Dissipation	$P_D (T_A=25^\circ\text{C})$	2		W
Maximum Junction-to-Ambient	R_{JA}	$t \leq 10\text{s}$	62.5	/W
		Steady-State	90	/W
Maximum Junction-to-Lead	R_{JL}	Steady-State	40	/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	30	32		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=7.2A$		21	25	m Ω
		$V_{GS}=4.5V$ $I_D=5.0A$		29	35	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1.0A$			1.0	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		700		pF
Output Capacitance	C_{oss}			200		pF
Reverse Transfer Capacitance	C_{rss}			130		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		5		
Total Gate Charge(10V)	Q_g	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=7.2A$		15		nC
Total Gate Charge(4.5V)				7.5		nC
Gate-Source Charge	Q_{gs}			2.5		nC
Gate-Drain Charge	Q_{gd}			3		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=1.8\Omega$ $R_{GEN}=3\Omega$		5		ns
Turn-On Rise Time	t_r			3.5		ns
Turn-Off Delay Time	$t_{d(off)}$			19		ns
Turn-Off Fall Time	t_f			3.5		ns

N- / N-CHANNEL Electrical Characteristic Curve

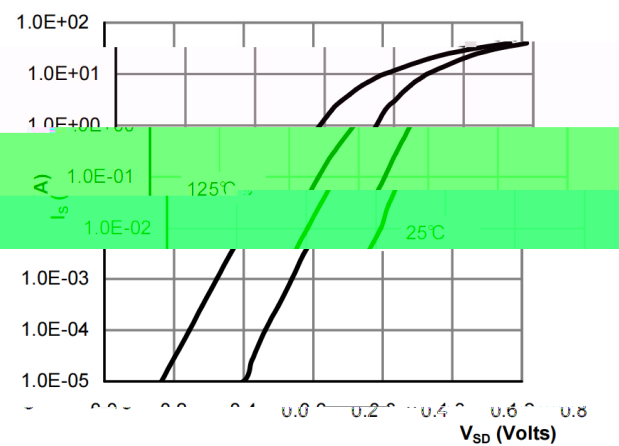
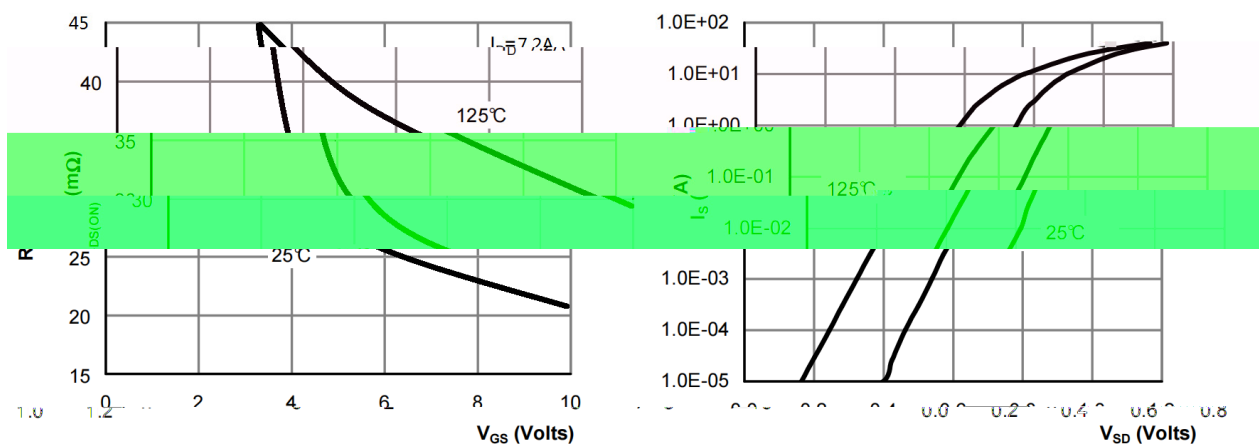
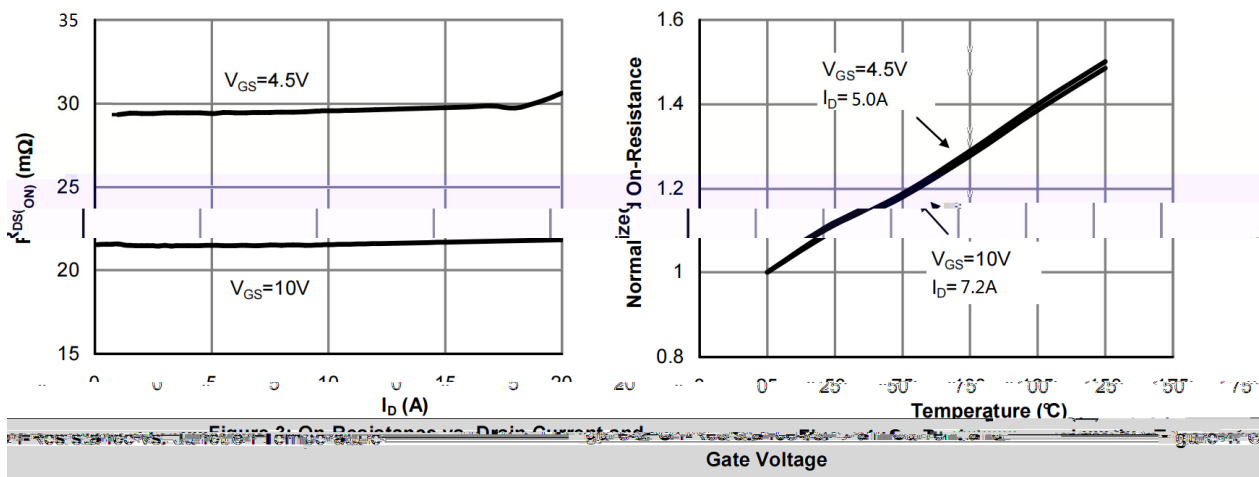
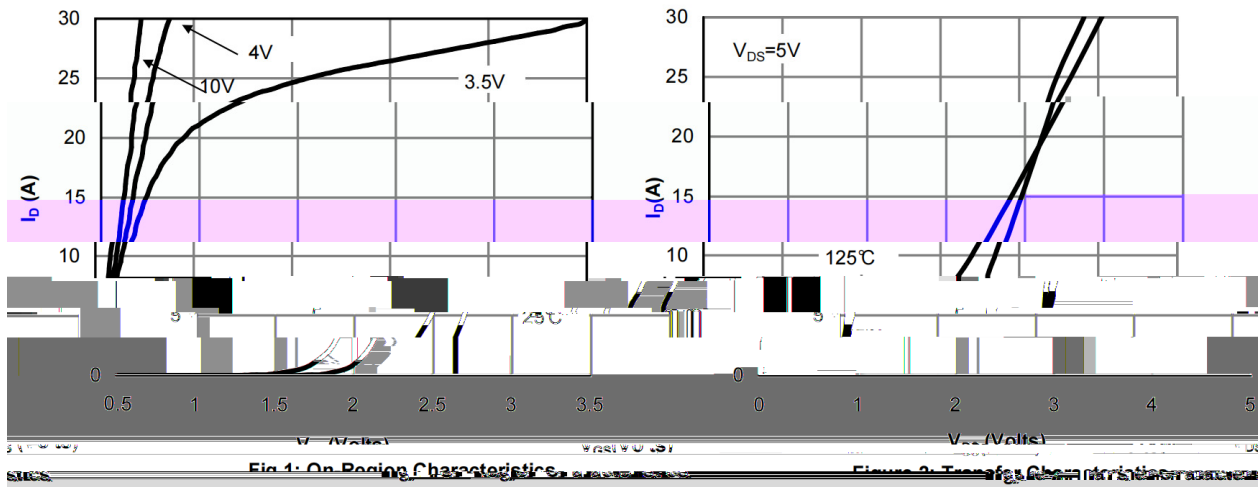
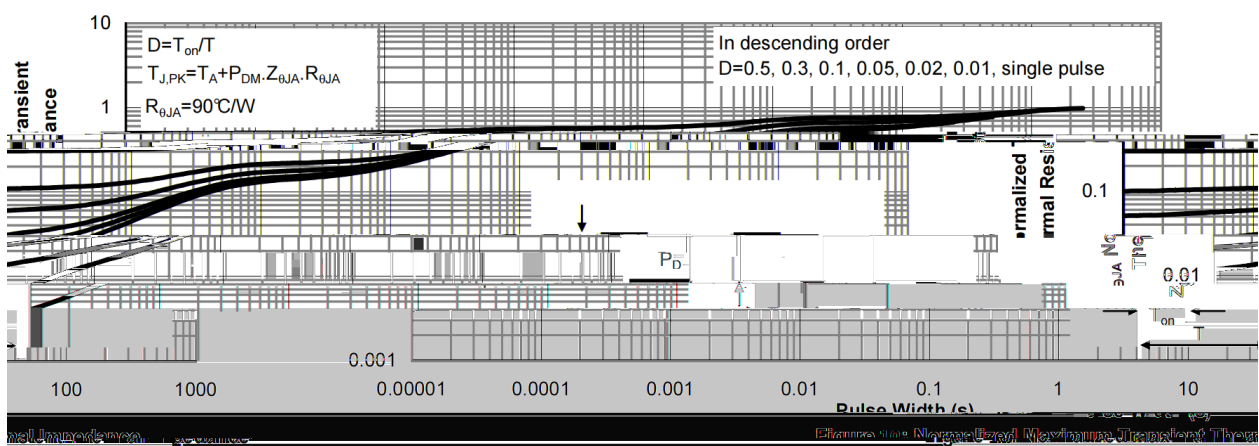
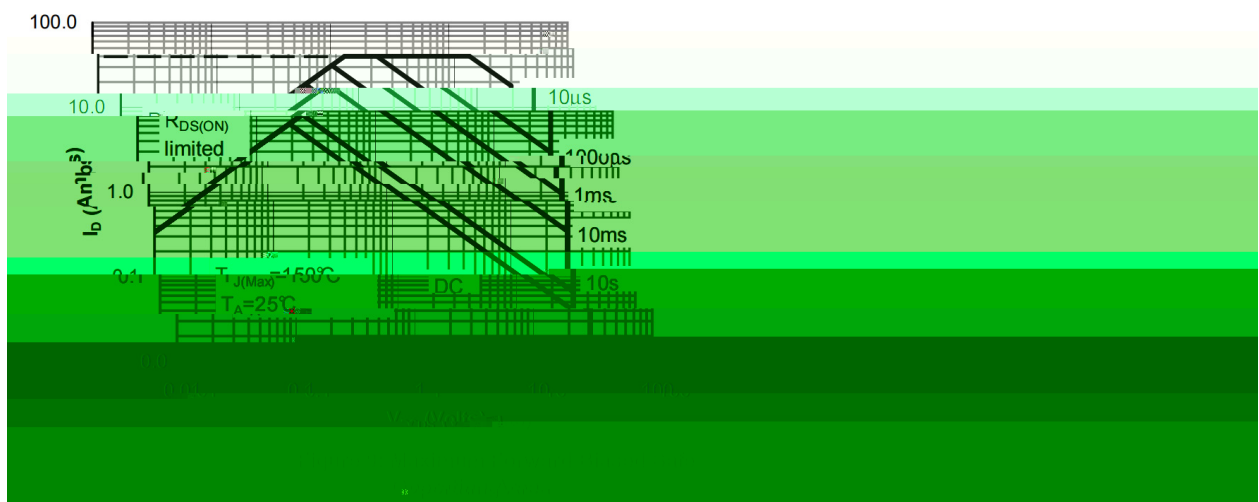
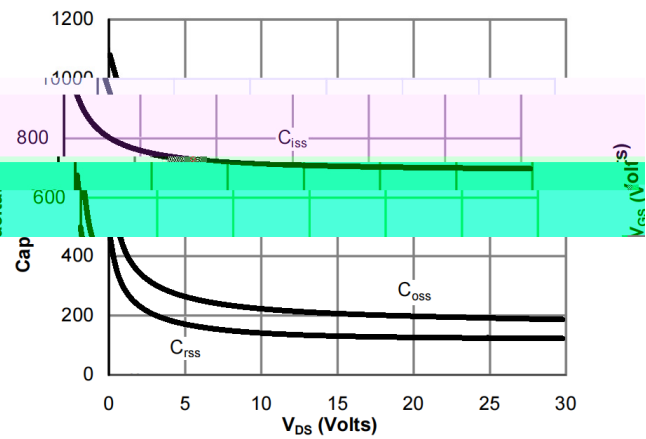
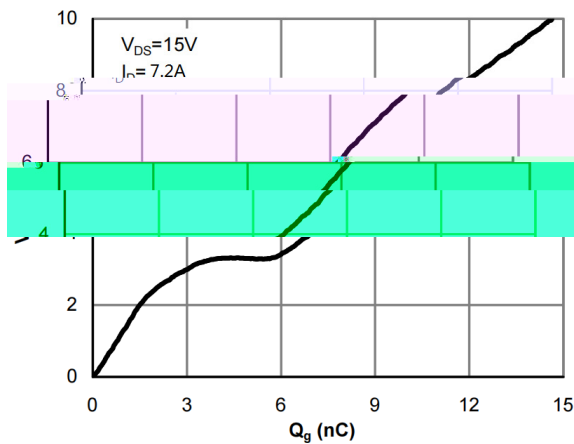


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

N- / N-CHANNEL Electrical Characteristic Curve


P- /P-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	-30	-33		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V V _{GS} =0V			-1.0	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	-1.0	-1.5	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V I _D =-7.0A		22	25	mΩ
		V _{GS} =-4.5V I _D =-5.0A		30	35	mΩ
Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =-1.0A			-1.0	V
Input Capacitance	C _{iss}	V _{DS} =-25V V _{GS} =0V f=1.0MHz		2300		pF
Output Capacitance	C _{oss}			370		pF
Reverse Transfer Capacitance	C _{rss}			350		pF
Gate resistance	R _g	V _{DS} =0V V _{GS} =0V f=1.0MHz		5		
Total Gate Charge(10V)	Q _g	V _{GS} =-10V V _{DS} =-15V I _D =-7A		19		nC
Total Gate Charge(4.5V)				9.6		nC
Gate-Source Charge	Q _{gs}			3.6		nC
Gate-Drain Charge	Q _{gd}			4.6		nC
Turn-On Delay Time	t _{d(on)}	V _{DS} =-15 V V _{GS} =-10V R _L =2.2Ω R _{GEN} =3Ω		10		ns
Turn-On Rise Time	t _r			5.5		ns
Turn-Off Delay Time	t _{d(off)}			26		ns
Turn-Off Fall Time	t _f			9		ns

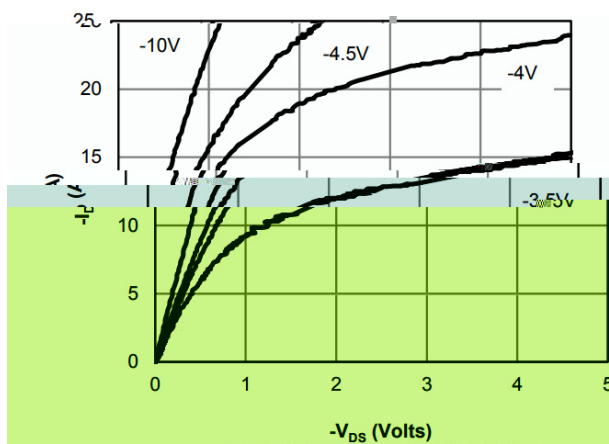
P- / P-CHANNEL Electrical Characteristic Curve


Figure 1: On-Region Characteristics

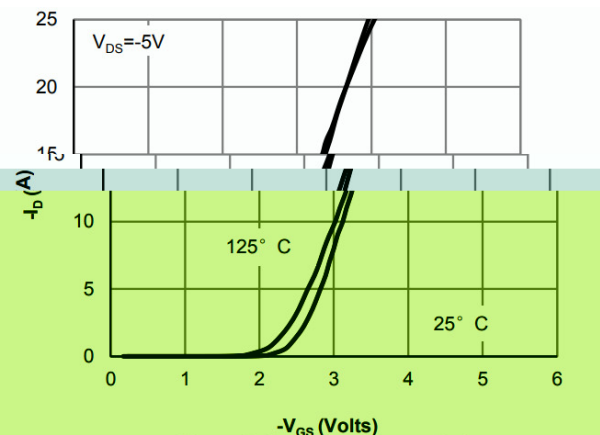


Figure 2: Transfer Characteristics

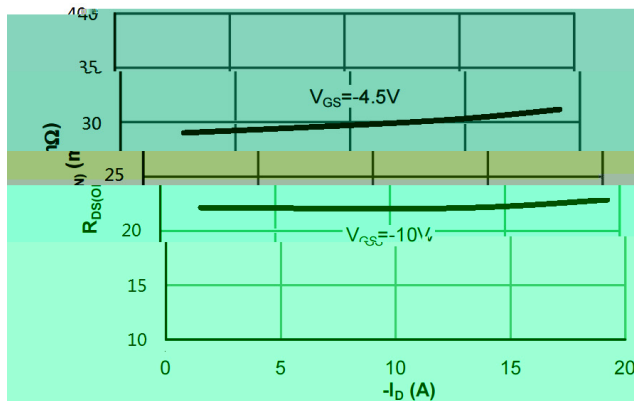


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

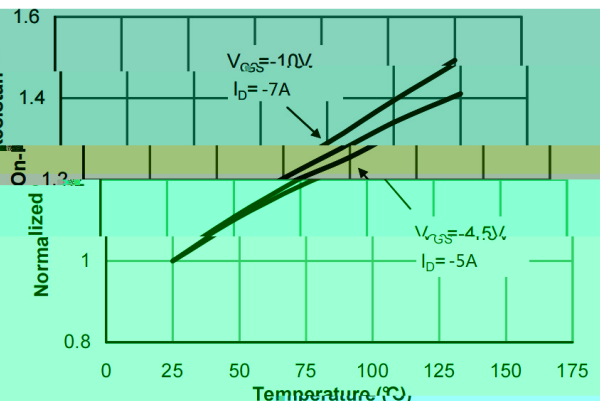


Figure 4: On-Resistance vs. Temperature

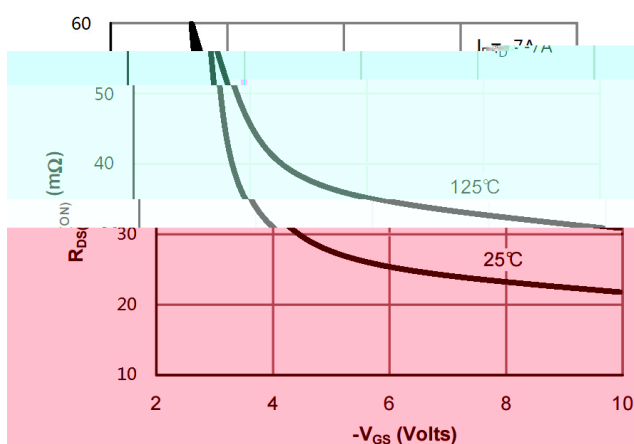


Figure 5: On-Resistance vs. Channel Width

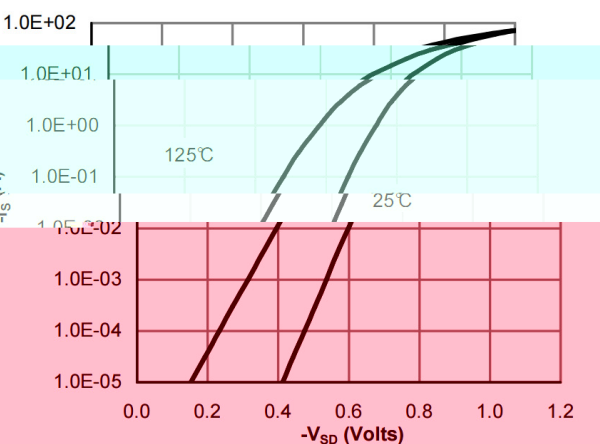
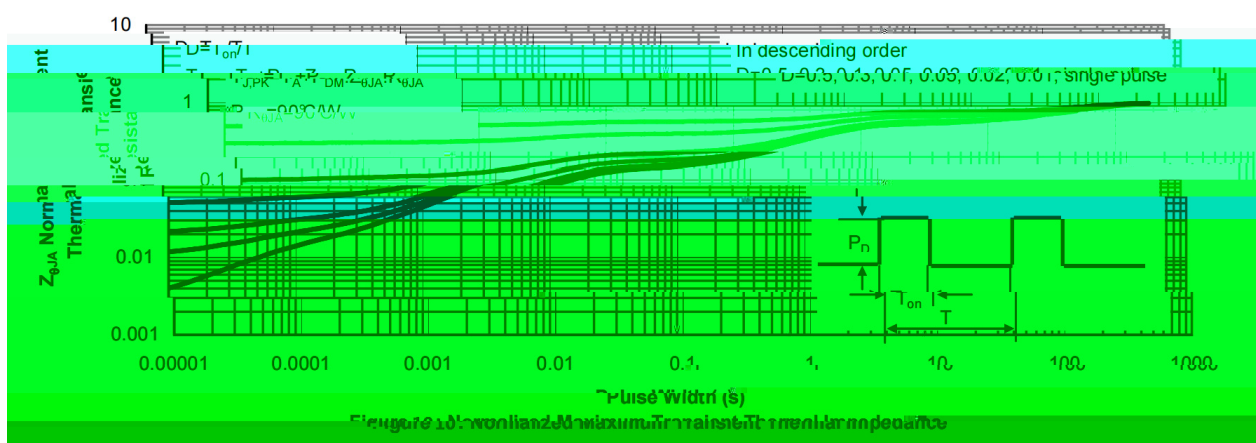
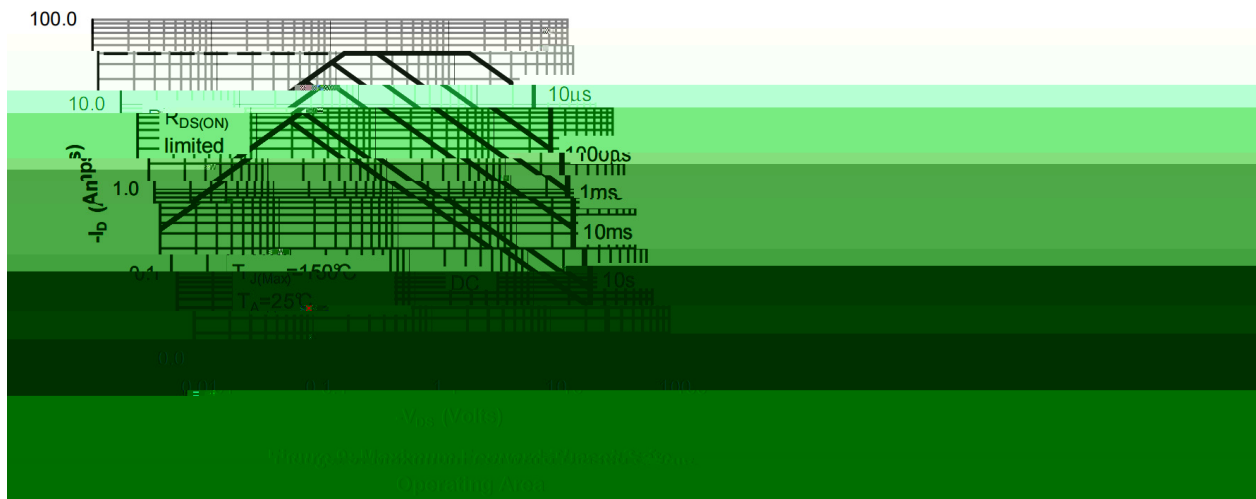
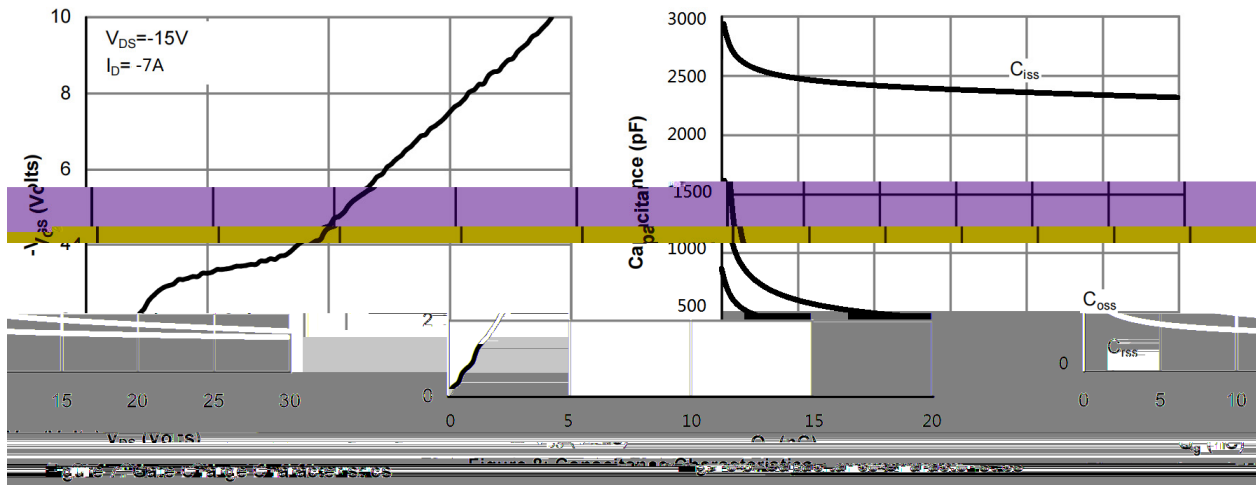
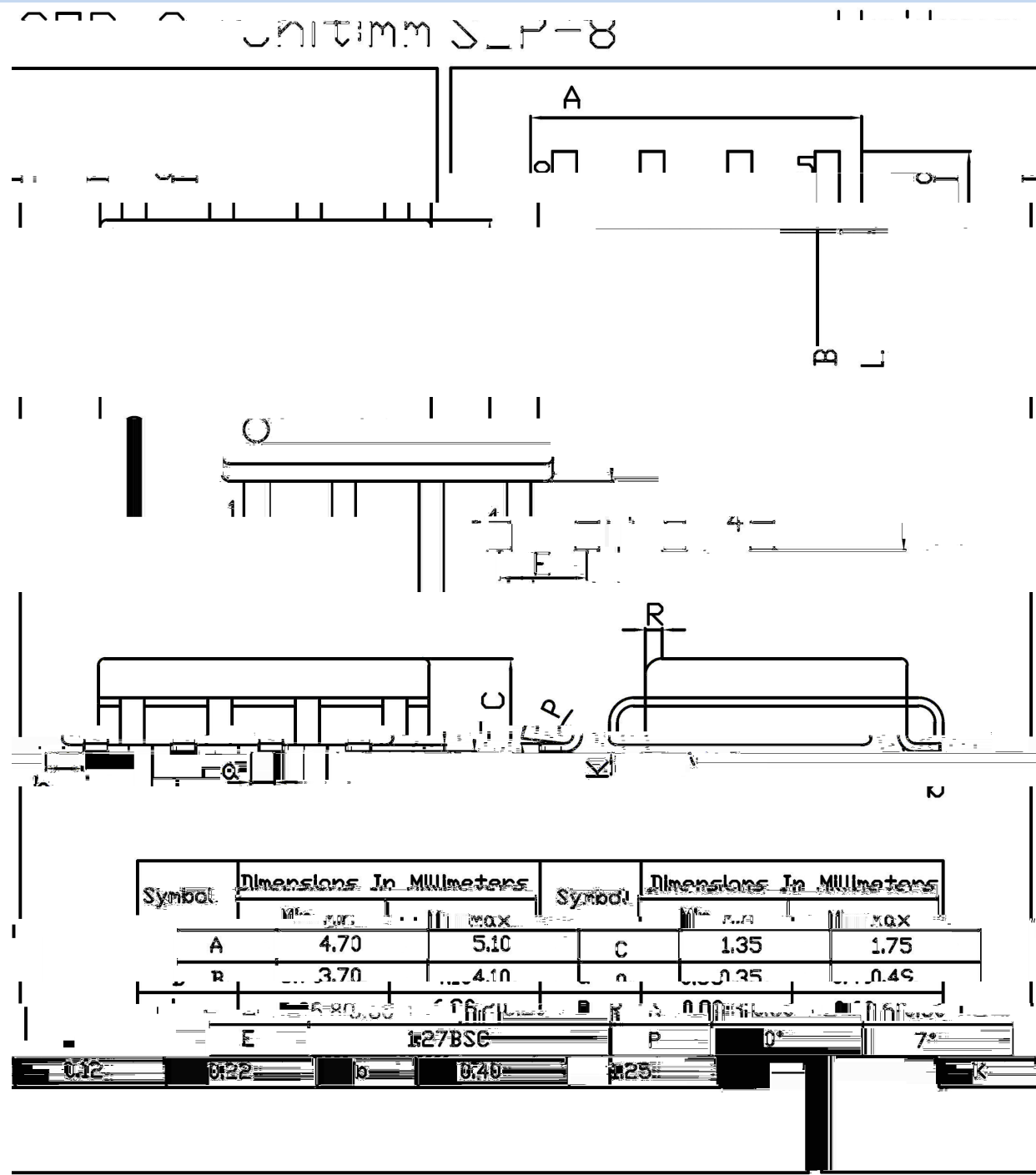


Figure 6: Body Diode Characteristics

P- / P-CHANNEL Electrical Characteristic Curve

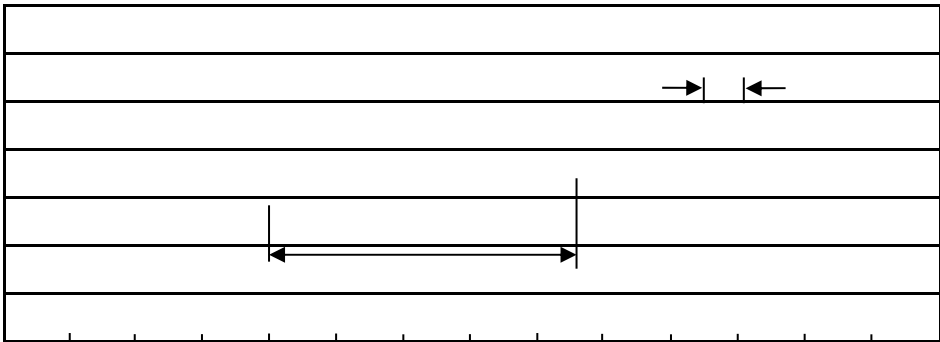


/ Package Dimensions



BRCS4620SC

() / 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 mm ³)		
	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