/ Descriptions

SOP-8 MOS

Complementary Enhancement MOSFET in a SOP-8 Plastic Package.

/ Features

N-channel	P-channel
V_{DS}(V)=60V	V_{DS}(V)=-60V
I_D=9.7A	I_D-3.4A
$R_{DS(ON)}$<16mΩ (V_{GS}=10V)	$R_{DS(ON)}$<100mΩ (V_{GS}=-10V)
$R_{DS(ON)}$<22mΩ (V_{GS}=4.5V)	$R_{DS(ON)}$<130mΩ (V_{GS}=-4.5V)

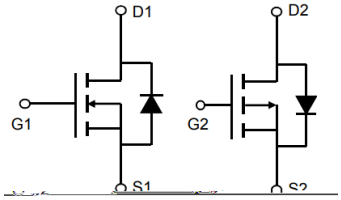
HF Product.

/ Applications

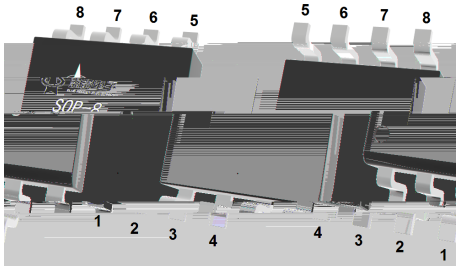
DC/DC

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)

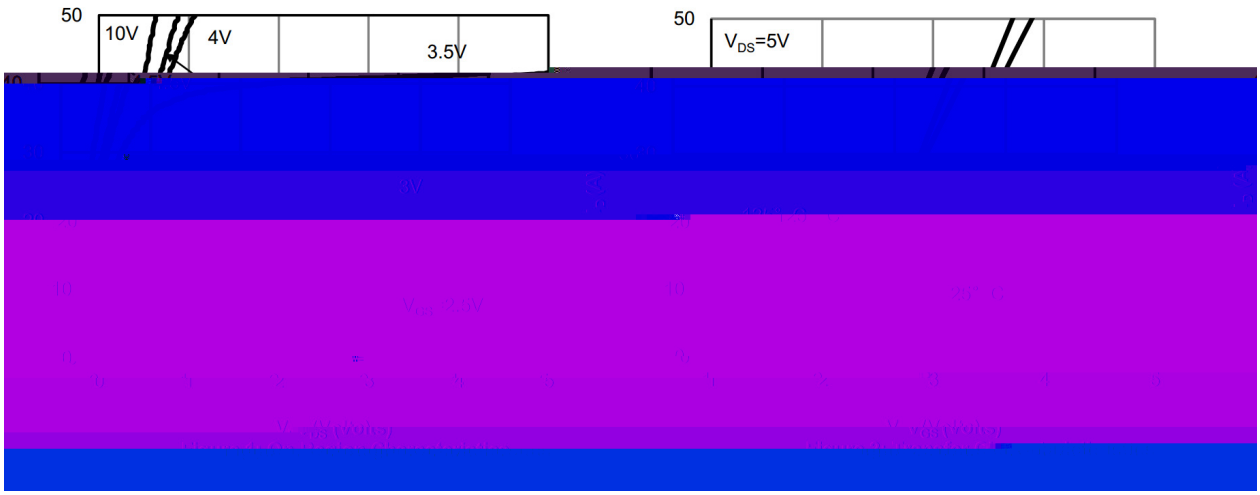
Parameter	Symbol		Rating		Unit
			N-channel	P-channel	
Drain-Source Voltage	V_{DSS}		60	-60	V
Gate-Source Voltage	V_{GSS}		±20		V
Continuous Drain Current	I_D (T_A=25)		9.7	-3.4	A
Pulsed Drain Current	I_{DM}		±40		A
Power Dissipation	P_D (T_A=25℃)		2.7	1.9	W
Maximum Junction-to-Ambient	$R_{\theta JA}$	t 10s	46.3	65.8	℃/W
		Steady-State	72	100	℃/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 A	60	68		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V	V_{GS}=0V			1.0	A
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=250 A	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=10A		14	16	m
		V_{GS}=4.5V	I_D=10A		17.5	22	m
Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_S=1.0A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		570		pF
Output Capacitance	C_{oss}				310		pF
Reverse Transfer Capacitance	C_{rss}				11		pF
Gate resistance	R_g	V_{DS}=0V f=1.0MHz	V_{GS}=0V		1.5		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V I_D=9.7A	V_{DS}=30V		13.5		nC
Total Gate Charge	$Q_{g(4.5V)}$				6.5		nC
Gate-Source Charge	Q_{gs}				2.5		nC

Gate-Draage4.3( )]TJ1.0189 .2914 TD0 Tc0 Tw(Q)Tj7.0172 0 0 7.02Tf9 39[4.5003 Tm-.0004 Tcd(gs)Tj10.4958 0 0 10

DS(on)

N- / N-CHANNEL Electrical Characteristic Curve



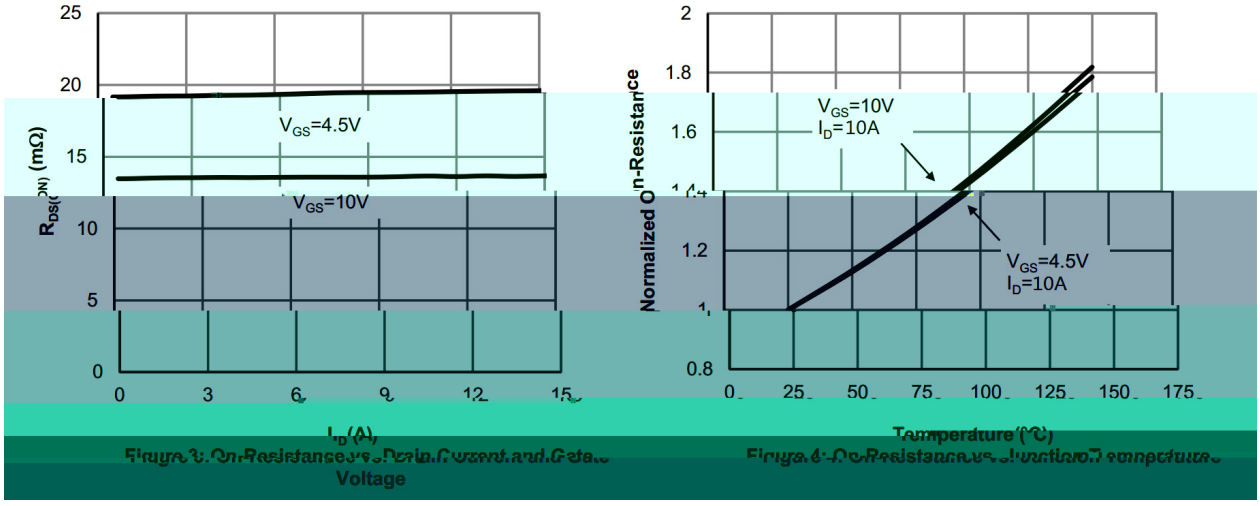


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature

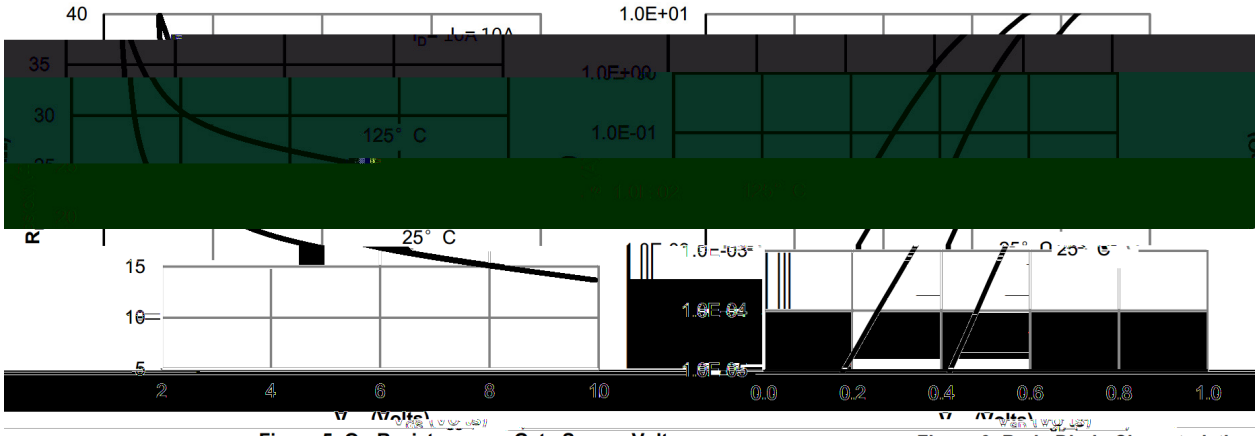


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

N- / N-CHANNEL Electrical Characteristic Curve

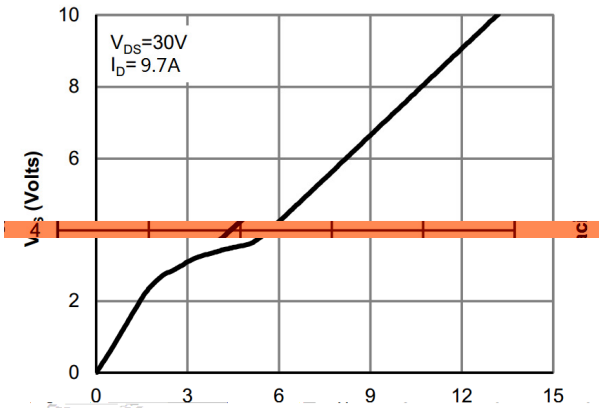


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Figure 7: Gate-Charge Characteristics

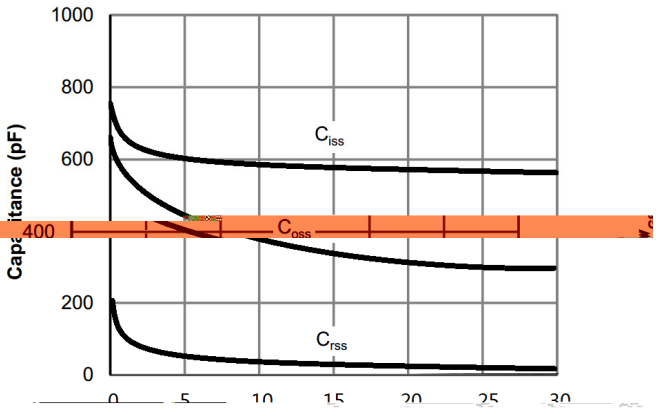
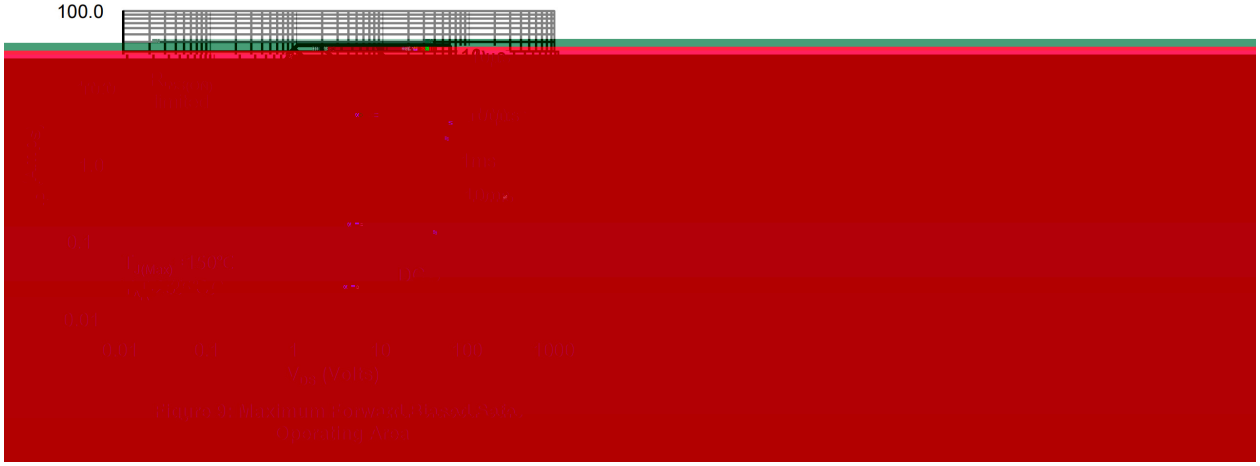
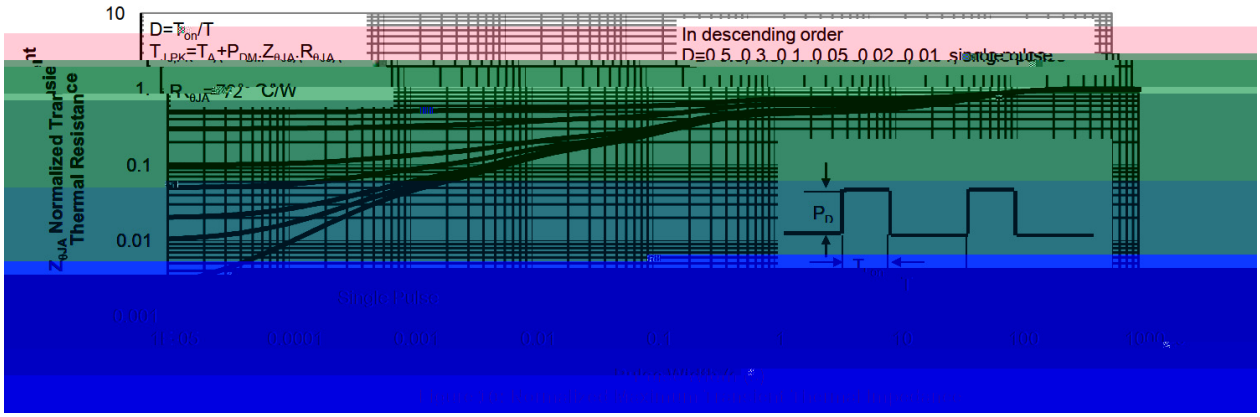


Figure 8: Capacitance Characte





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=-250 A	-60	-71		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V V_{GS}=0V			-1.0	A
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=-250 A	-1.0	-1.7	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V I_D=-10A		87	100	m
		V_{GS}=-4.5V I_D=-10A		104	130	m
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		1170		pF
Output Capacitance	C_{oss}			60		pF
Reverse Transfer Capacitance	C_{rss}			45		pF
Gate resistance	R_g	V_{DS}=0V V_{GS}=0V f=1.0MHz		5.5		Ω
Total Gate Charge	$Q_{g(-10V)}$	V_{GS}=-10V V_{DS}=-30V I_D=-3.4A		12.3		nC
Total Gate Charge	$Q_{g(-4.5V)}$			6.3		nC
Gate-Source Charge	Q_{gs}			1.6		nC
Gate-Drain Charge	Q_{gd}			2.4		nC
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=-30V V_{GS}=-10V R_L=5.4 R_{GEN}=3		12		ns
Turn-On Rise Time	t_r			20		ns
Turn-Off Delay Time	$t_{d(off)}$			20		ns
Turn-Off Fall Time	t_f			25		ns

P- / P-CHANNEL Electrical Characteristic Curve

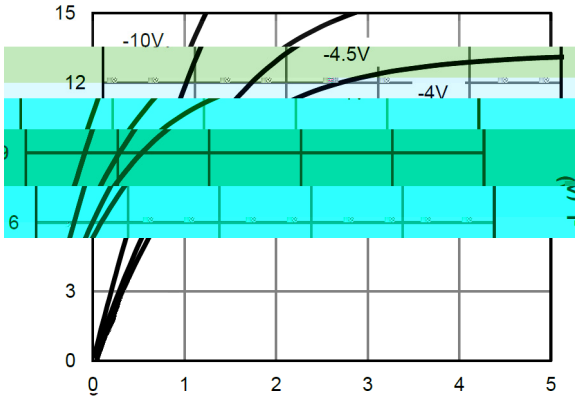


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Figure 1: On-Region Characteristics

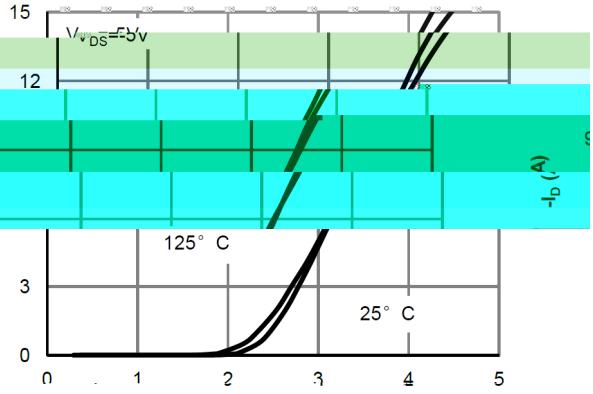


Figure 2: Transfer Characteristi

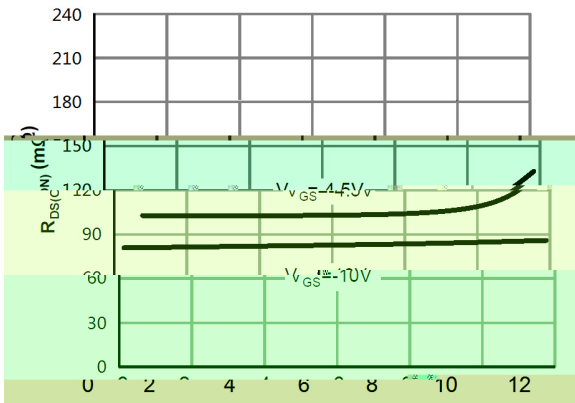


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

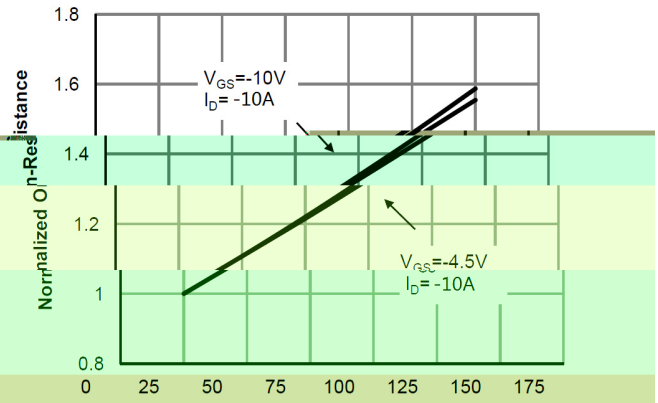
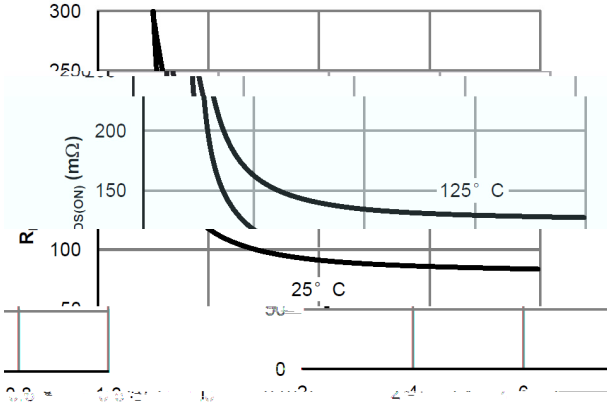


Figure 4: On-Resistance vs. Junction Temperature



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Characteristics

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

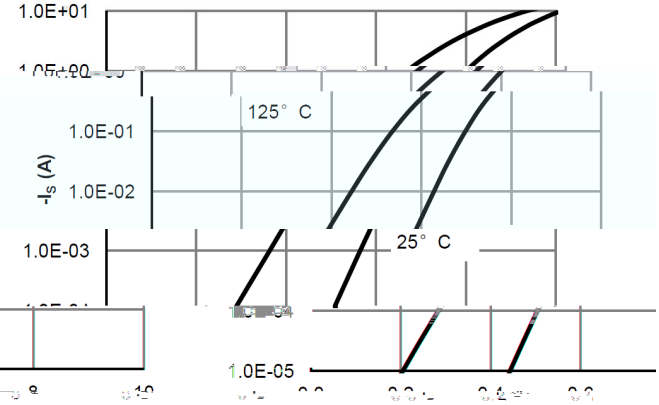


Figure 6: Body-Diode

P- / P-CHANNEL Electrical Characteristic Curve

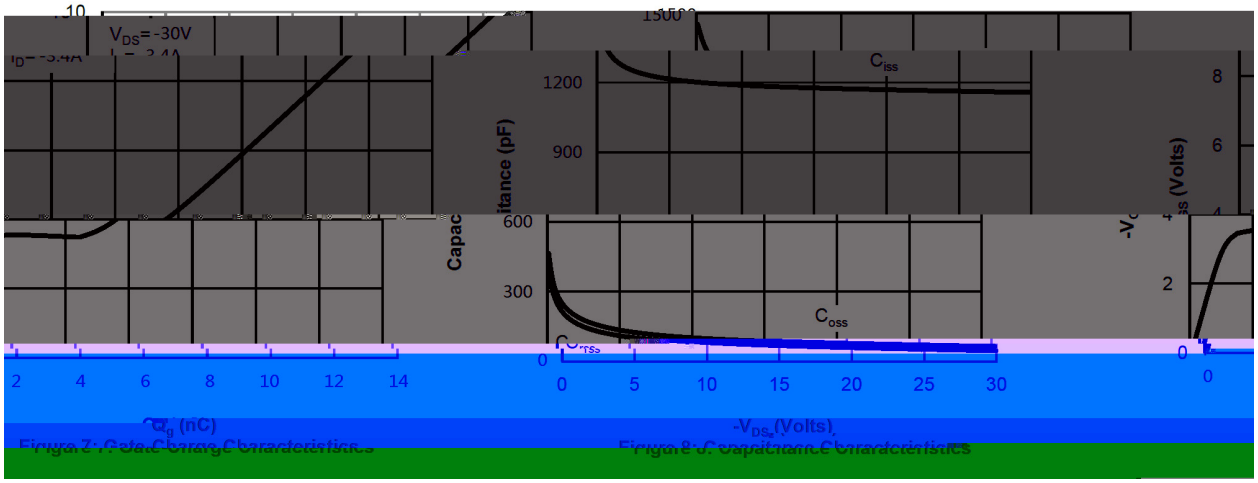


Figure 7: Gate Charge Characteristics

Figure 8: Capacitance Characteristics

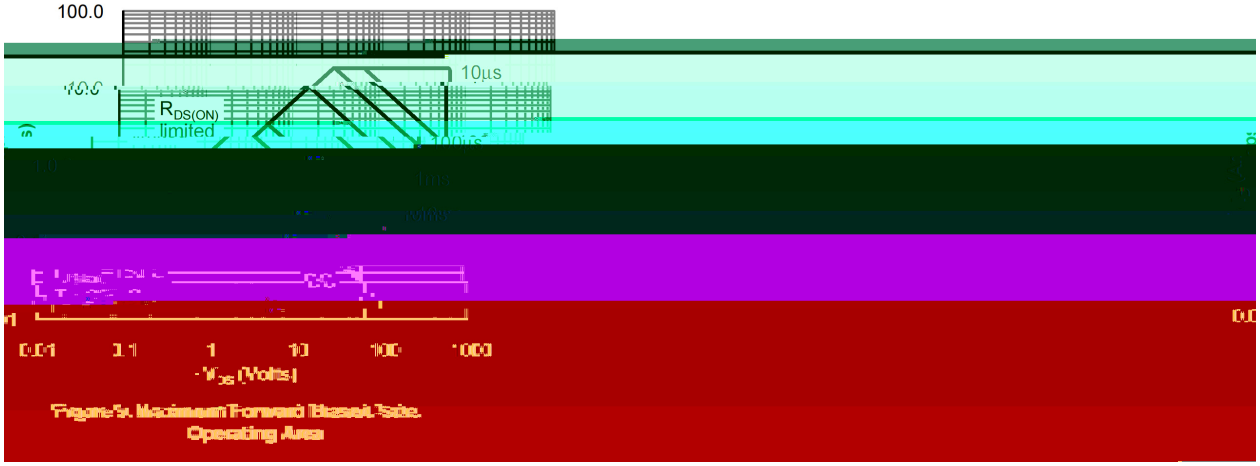


Figure 9. Maximum Forward Biased Safe Operating Area

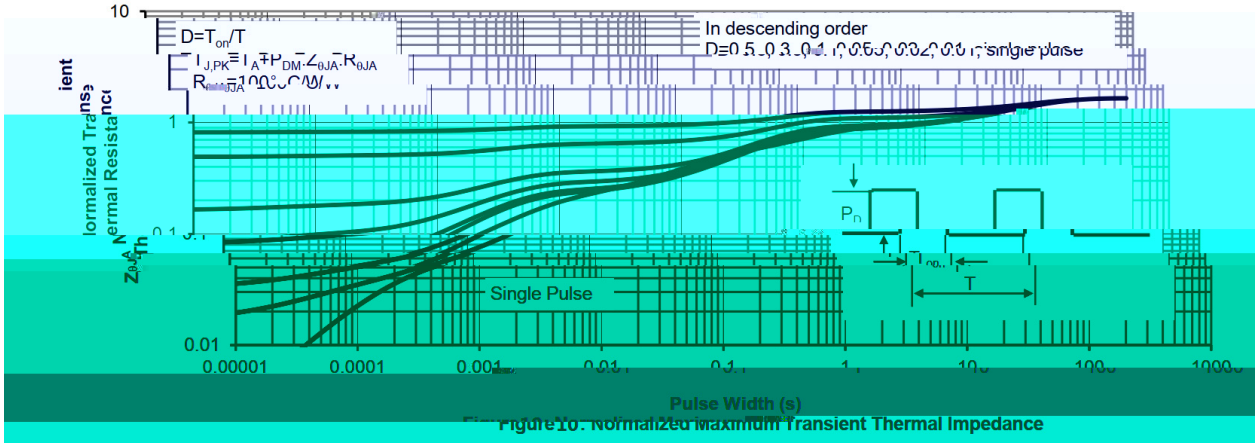
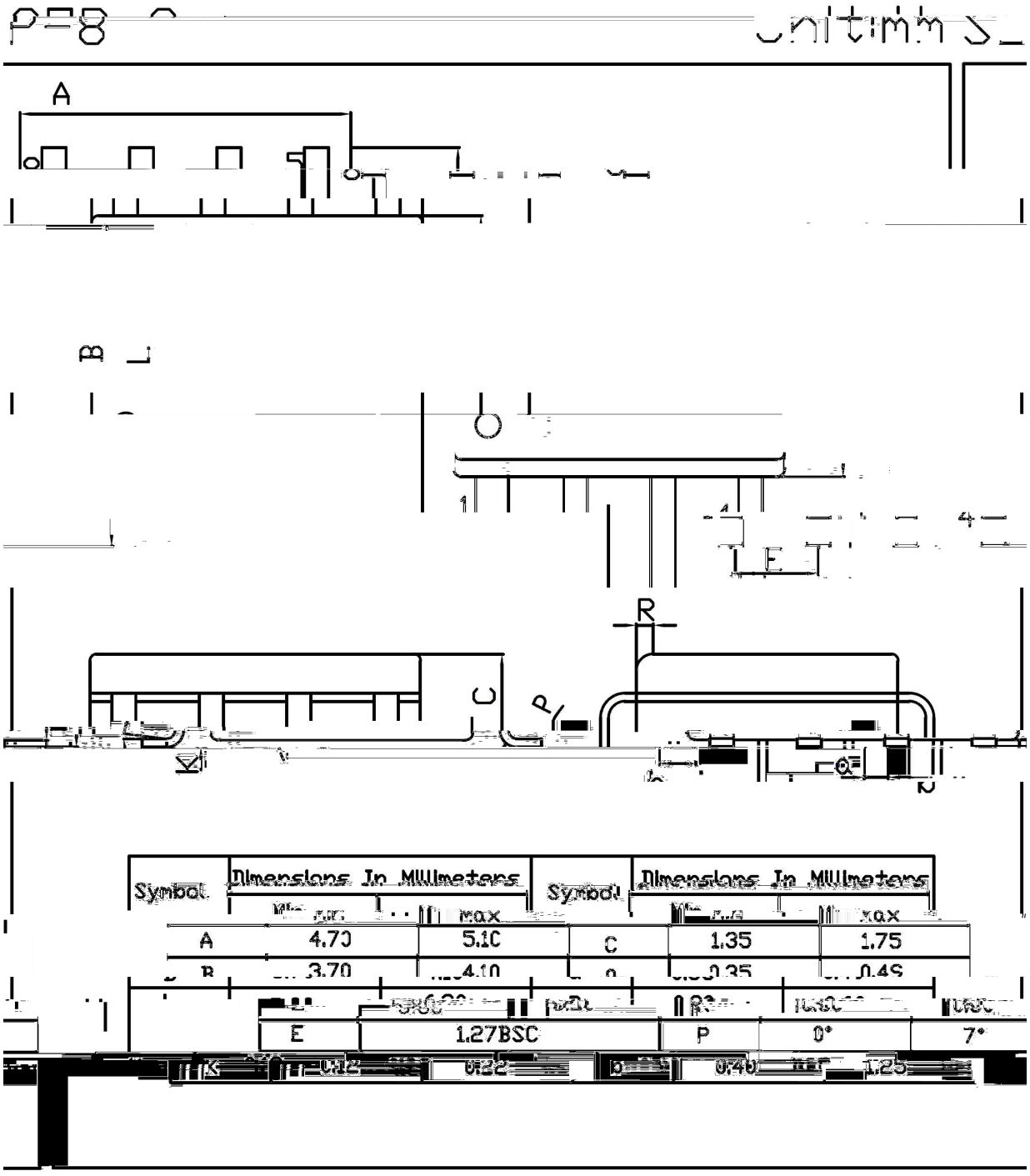
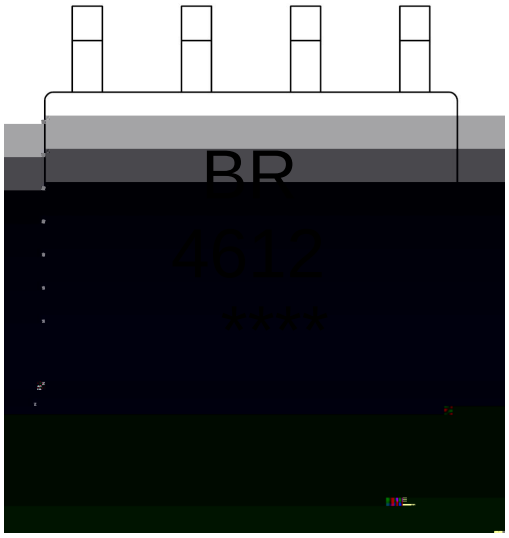


Figure10. Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



/ Marking Instructions



BR

4612

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Note:

BR:	Company Code
4612:	Product Type Code
****:	Lot No. Code, code change with Lot No

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

1	150	180		60	90sec;	Note: 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)
SOP/ESOP-8	4,000	2	8,000	6	48,000	13		