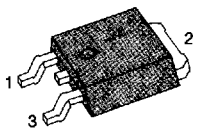
FEATURES

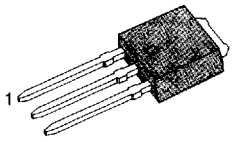
- **Lower $R_{DS(on)}$**
- **Excellent voltage stability**
- **Fast switching speeds**
- **Rugged polysilicon gate cell structure**
- **Lower input capacitance**
- **Extended safe operating area**
- **Improved high temperature reliability**
- **D-PAK/I-PAK package**

D-PAK



1.Gate 2.Drain 3.Source
SSR2955

I-PAK



1.Gate 2.Drain 3.Source
SSU2955

PRODUCT SUMMARY

Part Number	V_{DS}	$R_{DS(on)}$	$I_{D(on)}$
SSR2955/U2955	−60V	0.30Ω	−12A

MAXIMUM RATINGS

Characteristic	Symbol	SSR2955/U2955	Units
Drain-Source Voltage (1)	V_{DSS}	−60	Vdc
Drain-Gate Voltage (R_{GS}=1.0MΩ) (1)	V_{DGR}	−60	Vdc
Gate-Source Voltage	V_{GS}	±20	Vdc
Continuous Drain Current T_C=25°C	I_D	−12	Adc
Continuous Drain Current T_C=100°C	I_D	−8.4	Adc
Drain Current—Pulsed (3)	I_{DM}	−36	Adc
Total Power Dissipation @ T_C=25°C Derate above 25°C	P_D	42 0.33	Watts W/°C
Operation and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	°C
Maximum Lead Temp. for Soldering Purposes, 1/8" from case for 5 seconds	T_L	300	°C

Notes: (1) T_J=25°C to 150°C
(2) Pulse test: Pulse width ≤ 300μs, Duty Cycle ≤ 2%
(3) Repetitive rating: Pulse width limited by max. junction temperature

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise specified)

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
BV_{DSS}	Drain-Source Breakdown Voltage	-60	-	-	V	V_{GS}=0V I_D=-250μA
$V_{GS(th)}$	Gate Threshold Voltage	-2.0	-	-4.0	V	V_{DS}=V_{GS}, I_D=-250μA
I_{GSS}	Gate-Source Leakage Forward	-	-	-100	nA	V_{GS}=-20V
I_{GSS}	Gate-Source Leakage Reverse	-	-	100	nA	V_{GS}=20V
I_{DSS}	Zero Gate Voltage Drain Current	-	-	-250	μA	V_{DS}=Max. Rating, V_{GS}=0V
		-	-	-1000	μA	V_{DS}=-0.8 Max. Rating, V_{GS}=0V, T_C=125°C
$R_{DS(on)}$	Static Drain-Source On Resistance (2)	-	-	0.30	Ω	V_{GS}=-10V, I_D=-6.0A
g_{fs}	Forward Transconductance (2)	3.0	-	-	℧	V_{DS}≥-15V, I_D=-6.0A
C_{iss}	Input Capacitance	-	600	-	pF	V_{GS}=0V, V_{DS}=-25V, f=1.0MHz
C_{oss}	Output Capacitance	-	300	-	pF	
C_{rss}	Reverse Transfer Capacitance	-	135	-	pF	
$t_{d(on)}$	Turn-On Delay Time	-	15	-	ns	V_{DD}=-0.5 BV_{DSS}, I_D=-12A, Z_O=24 Ω (MOSFET switching times are essentially independent of operating temperature)
t_r	Rise Time	-	40	-	ns	
$t_{d(off)}$	Turn-Off Delay Time	-	30	-	ns	
t_f	Fall Time	-	30	-	ns	
Q_g	Total Gate Charge	-	-	29	nC	V_{GS}=-10V, I_D=-12A, V_{DS}=-0.8 Max. Rating (Gate charge is essentially independent of operating temperature)
Q_{gs}	Gate-Source Charge	-	7	-	nC	
Q_{gd}	Gate-Drain Charge	-	15	-	nC	

THERMAL RESISTANCE

Symbol	Characteristics		All	Units	Remark
R_{thJC}	Junction-to-Case	MAX	3.0	K/W	
R_{thcs}	Case-to-Sink	MAX	1.7	K/W	Mounting surface flat, smooth, and greased
R_{thJA}	Junction-to-Ambient	MAX	110	K/W	Free Air Operation

Notes : (1) T_J=25°C to 150°C
(2) Pulse test : Pulse width≤300μs, Duty Cycle≤2%
(3) Repetitive rating : Pulse width limited by max. junction temperature

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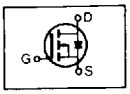
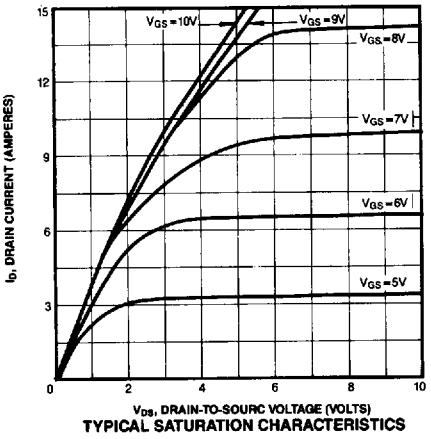
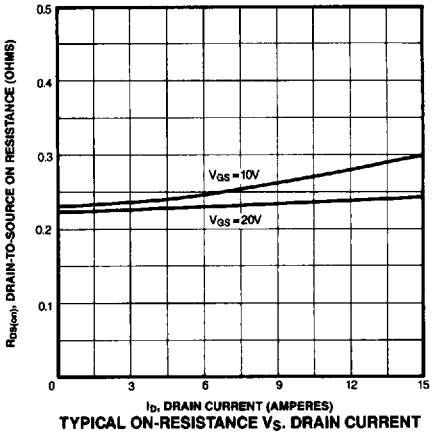
SOURCE DRAIN DIODE RATING AND CHARACTERISTICS

Symbol	Characteristic	Min	Typ	Max	Units	Test Condition
I_S	Continuous Source Current (Body Diode)	—	—	−12	A	Modified MOSFET symbol showing the integral reverse P-N junction rectifier 
I_{SM}	Pulse Source Current (Body Diode) (3)	—	—	−36	A	
V_{SD}	Diode Forward Voltage (2)	—	—	−3.8	V	T_J=25°C, I_S=−12A, V_{GS}=0V
t_{rr}	Reverse Recovery Time	—	110	—	ns	T_J=25°C, I_F=−12A, dI_F/dt=100A/μS

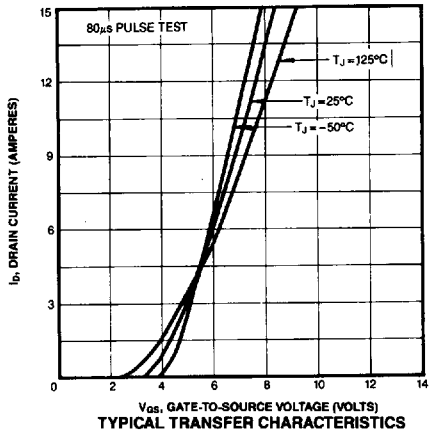
Notes: (1) T_J=25°C to 150°C
(2) Pulse test: Pulse width ≤300μs, Duty Cycle ≤2%
(3) Repetitive rating: Pulse width limited by max. junction temperature



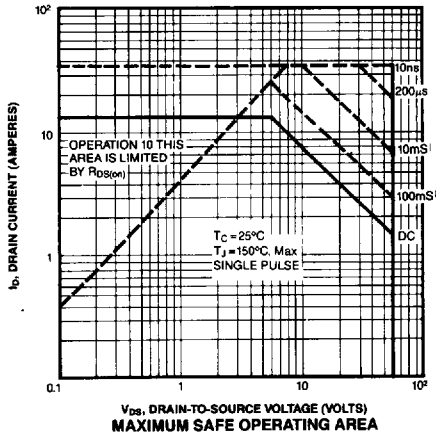
TYPICAL SATURATION CHARACTERISTICS



TYPICAL ON-RESISTANCE V_S. DRAIN CURRENT

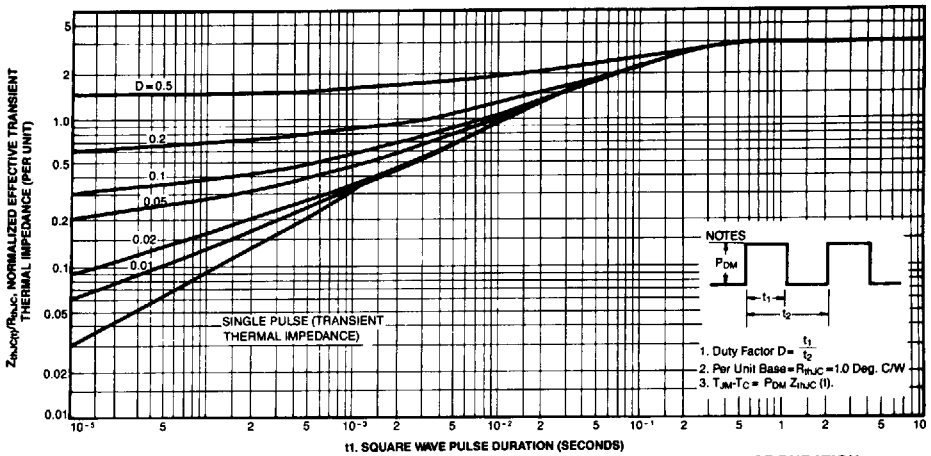


TYPICAL TRANSFER CHARACTERISTICS

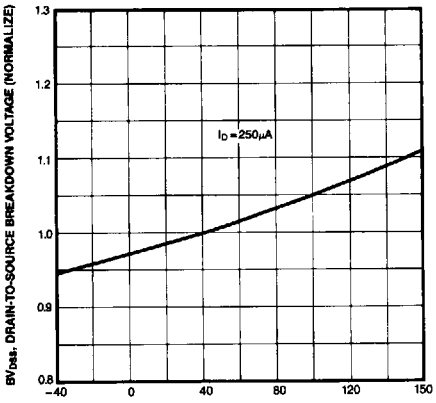


MAXIMUM SAFE OPERATING AREA

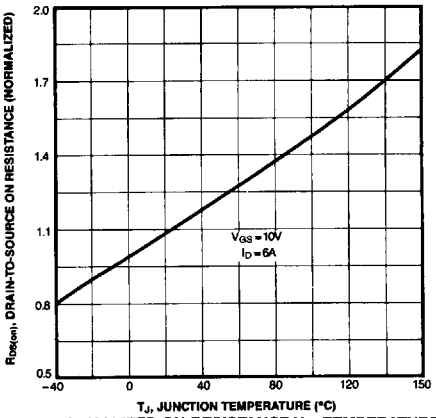
SAMSUNG ELECTRONICS



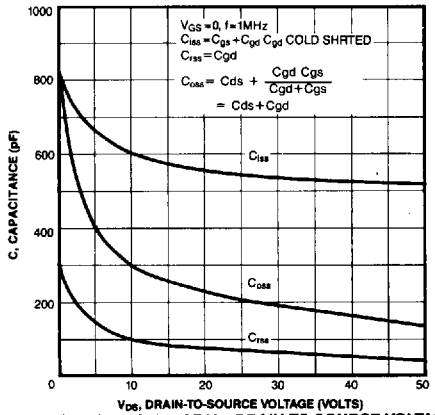
MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE JUNCTION-TO-CASE VS. PULSE DURATION



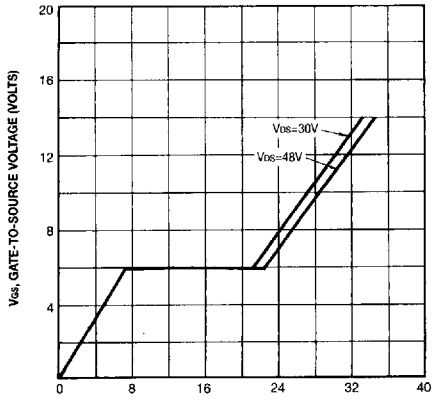
BREAKDOWN VOLTAGE VS. TEMPERATURE



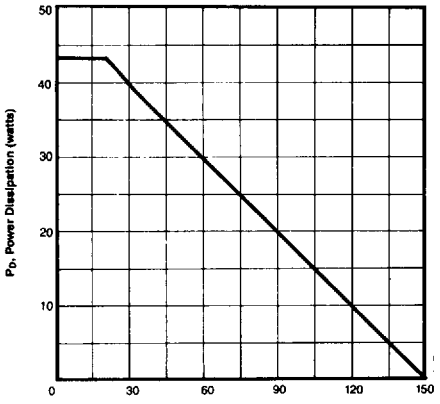
NORMALIZED ON-RESISTANCE VS. TEMPERATURE



TYPICAL CAPACITANCE VS. DRAIN TO SOURCE VOLTAGE



Maximum Safe Operating Area



POWER V_S. TEMPERATURE DERATING CURVE.