

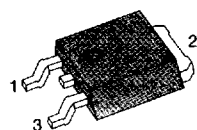
FEATURES

- Lower $R_{DS(ON)}$
- Excellent voltage stability
- Fast switching times
- Rugged polysilicon gate cell structure
- Lower input capacitance
- Extended safe operating area
- Improved high temperature reliability

PRODUCT SUMMARY

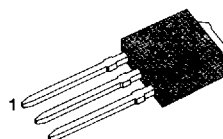
Part Number	V _{DS}	R _{DS(on)}	I _D
SSR1N60/U1N60	600V	12 Ω	1.0A
SSR1N55/U1N55	550V	12 Ω	1.0A

D-PAK



1.Gate 2.Drain 3.Source
SSR1N60/55

I-PAK



1.Gate 2.Drain 3.Source
SSU1N60/55

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	SSR1N60/U1N60	SSR1N55/U1N55	Unit
Drain-Source Voltage (1)	V _{DSS}	600	550	V _{dc}
Drain-Gate Voltage (R _{GS} =1.0M Ω)(1)	V _{DGR}	600	550	V _{dc}
Gate-Source Voltage	V _{GS}	± 20		V _{dc}
Continuous Drain Current T _C =25 °C	I _D	1.0		A _{dc}
Continuous Drain Current T _C =100 °C	I _D	0.7		A _{dc}
Drain Current - Pulsed (3)	I _{DM}	3.0		A _{dc}
Gate Current - Pulsed	I _{GM}	± 1.5		A _{dc}
Total Power Dissipation at T _C =25 °C	P _D	40		Watts
Derate above 25 °C		0.32		W/ °C
Operating 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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$

(3) Repetitive rating : Pulse width limited by max. junction temperature

ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless otherwise specified)

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
BV _{DSS}	Drain-Source Breakdown Voltage					
	SSR1N60/U1N60	600	-	-	V	V _{GS} =0V, I _D =250 μ A
	SSR1N55/U1N55	550	-	-	V	
V _{GS(th)}	Gate Threshold Voltage	2.0	-	4.0	V	V _{DS} =V _{GS} , I _D =250 μ A
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	μ A	V _{DS} =Max. Rating, V _{GS} =0V
		-	-	1000	μ A	V _{DS} =0.8 Max. Rating, V _{GS} =0V, T _c =125 $^\circ$ C
R _{DS(on)}	Static Drain-Source On Resistance (2)	-	-	12	Ω	V _{GS} =10V, I _D =0.5A
g _{fs}	Forward Transconductance (2)	0.5	-	-	Ω	V _{DS} $\geq$ 50V, I _D =0.5A
C _{iss}	Input Capacitance	-	250	300	pF	V _{GS} =0V, V _{DS} =25V, f=1.0MHz
C _{oss}	Output Capacitance	-	25	50	pF	
C _{rss}	Reverse Transfer Capacitance	-	10	20	pF	
t _{d(on)}	Turn-On Delay Time	-	12	20	ns	V _{DD} =0.5 BV _{DSS} , I _D =1.0A, Z _o =24 Ω (MOSFET switching times are essentially independent of operating temperature)
t _r	Rise Time	-	4	15	ns	
t _{d(off)}	Turn-Off Delay Time	-	30	60	ns	
t _f	Fall Time	-	10	30	ns	
Q _g	Total Gate Charge (Gate-Source Pluse Gate-Drain)	-	-	21	nC	V _{GS} =10V, I _D =1.0A, V _{DS} =0.8 Max. Rating (Gate charge is essentially independent of operating temperature)
Q _{gs}	Gate-Source Charge	-	3	-	nC	
Q _{gd}	Gate-Drain ("Miller") Charge	-	9	-	nC	

THERMAL RESISTANCE

Symbol	Characteristics		All	Units	Remark
R _{thJC}	Junction-to-Case	MAX	3.125	K/W	
R _{thCS}	Case-to-Sink	TYP	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 $^\circ$ C to 150 $^\circ$ C

(2) Pulse test : Pulse width $\leq$ 300 μ s, Duty Cycle $\leq$ 2%

(3) Repetitive rating : Pulse width limited by max. junction temperature