

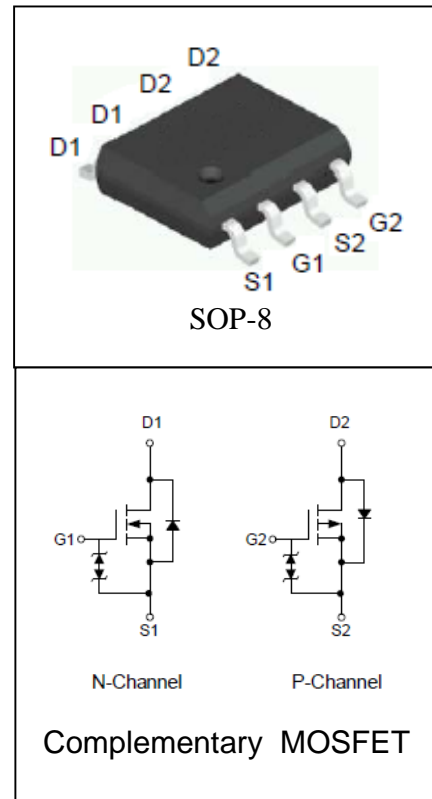
Features

- N-Channel
100V/3.5A,
 $R_{DS(ON)} = 75m\Omega$ (Type) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 80m\Omega$ (Type) @ $V_{GS} = 4.5V$
- P-Channel
-100V/-2.5A,
 $R_{DS(ON)} = 155m\Omega$ (Type) @ $V_{GS} = -10V$
 $R_{DS(ON)} = 175m\Omega$ (Type) @ $V_{GS} = -4.5V$
- Reliable and Rugged
- ESD Protected
- Lead Free and Green Available

Applications

- Power Management in Notebook Computer.

Pin Description



Absolute Maximum Ratings

Symbol	Parameter		N -Channel	P Channel	Unit
Common Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)					
V_{DSS}	Drain-Source Voltage		100	-100	V
V_{GSS}	Gate-Source Voltage		± 20	± 20	
T_J	Maximum Junction Temperature		150	150	$^\circ C$
T_{STG}	Storage Temperature Range		-55 to 150	-55 to 150	$^\circ C$
I_S	Diode Continuous Forward Current	$T_C = 25^\circ C$	3.5	-2.5	A
Mounted on Large Heat Sink					
I_{DP}	300 μs Pulse Drain Current Tested	$T_C = 25^\circ C$	14 ^①	-10 ^①	A
I_D	Continuous Drain Current	$T_C = 25^\circ C$	3.5	-2.5	A
		$T_C = 70^\circ C$	2.9	-2	
P_D	Maximum Power Dissipation	$T_C = 25^\circ C$	2		W
		$T_C = 70^\circ C$	1.3		
$R_{\theta JA}$ ^②	Thermal Resistance-Junction to Ambient		62.5		$^\circ C/W$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

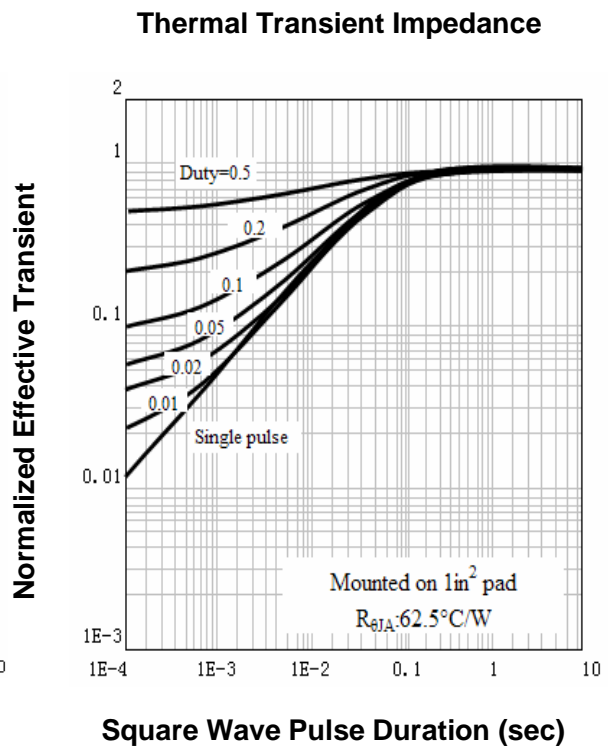
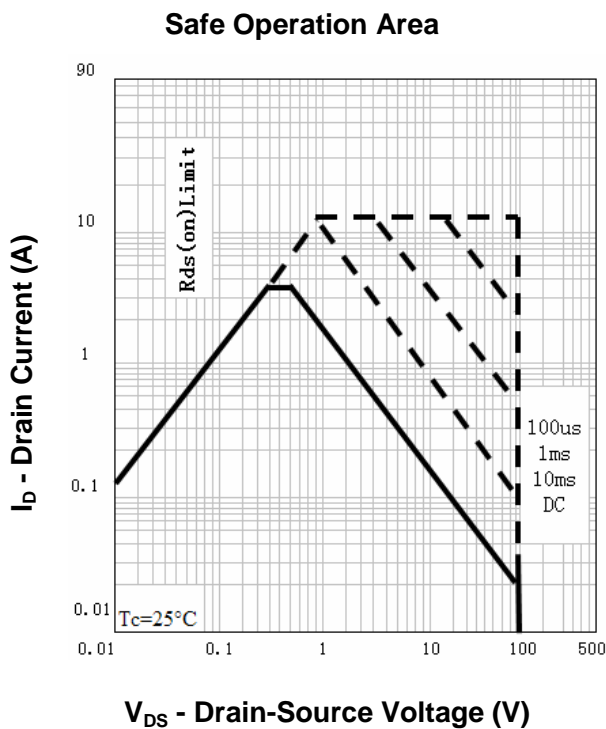
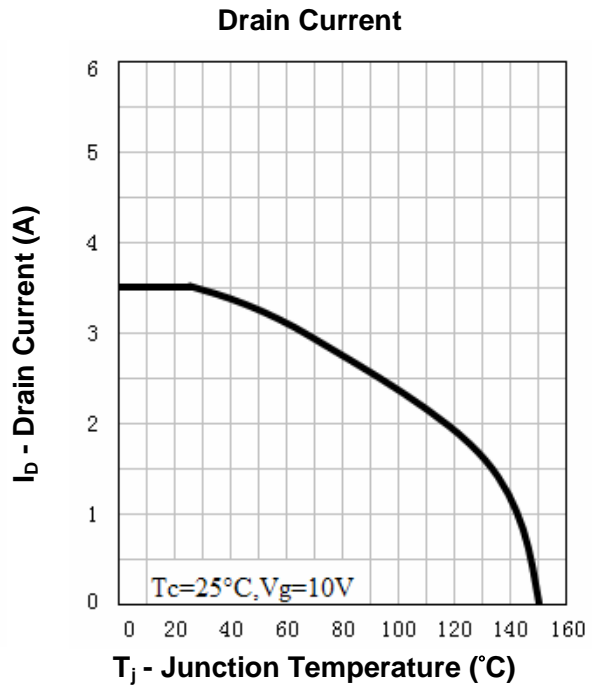
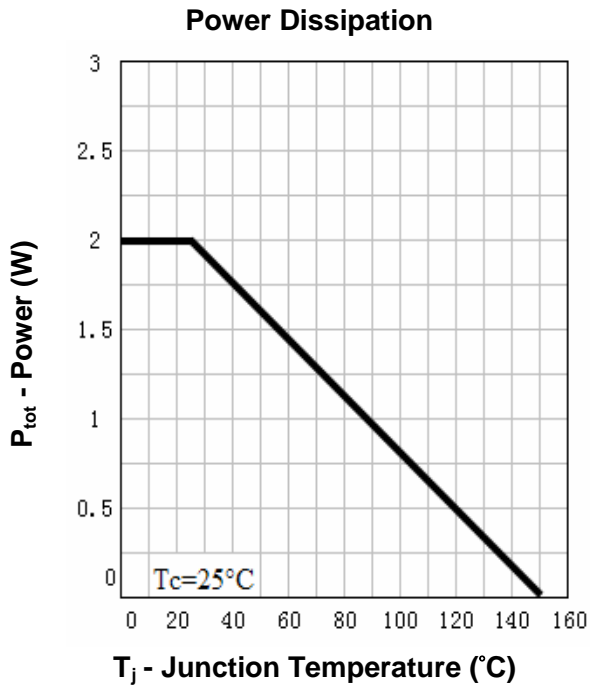
Symbol	Parameter	Test Condition	RU1HC2H			Unit	
			Min.	Typ.	Max.		
Static Characteristics							
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	N	100			V
		$V_{GS}=0V, I_{DS}=-250\mu A$	P	-100			
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$	N			1	μA
		$T_J=85^{\circ}\text{C}$				30	
		$V_{DS}=-100V, V_{GS}=0V$	P			-1	
		$T_J=85^{\circ}\text{C}$				-30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	N	1.5	2	2.7	V
		$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	P	-1.5	-2	-2.7	
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	N			± 10	μA
		$V_{GS}=\pm 20V, V_{DS}=0V$	P			± 10	μA
$R_{DS(ON)}^{(3)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=2A$	N		75	85	$m\Omega$
		$V_{GS}=4.5V, I_{DS}=1.5A$			80	95	
		$V_{GS}=-10V, I_{DS}=-2A$	P		155	170	
		$V_{GS}=-4.5V, I_{DS}=-1.5A$			175	195	
Diode Characteristics							
$V_{SD}^{(3)}$	Diode Forward Voltage	$I_{SD}=1A, V_{GS}=0V$	N			1.2	V
		$I_{SD}=-1A, V_{GS}=0V$	P			-1.2	V
t_{rr}	Reverse Recovery Time	N-Channel $I_{SD}=3.5A,$ $dI_{SD}/dt=100A/\mu s$	N		42		ns
			P		52		
Q_{rr}	Reverse Recovery Charge	P-Channel $I_{SD}=-2.5A,$ $dI_{SD}/dt=100A/\mu s$	N		43		nC
			P		75		

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Dynamic Characteristics ^④						
C_{iss}	Input Capacitance	N-Channel $V_{GS}=0V,$ $V_{DS}=50V,$ Frequency=1.0MHz	N		1520	pF
			P		1630	
C_{oss}	Output Capacitance	P-Channel $V_{GS}=0V,$ $V_{DS}=-50V,$ Frequency=1.0MHz	N		134	
			P		191	
C_{rss}	Reverse Transfer Capacitance	N-Channel $V_{GS}=0V,$ $V_{DS}=-50V,$ Frequency=1.0MHz	N		62	
			P		83	
$t_{d(ON)}$	Turn-on Delay Time	N-Channel $V_{DD}=50V, R_L=30\Omega,$ $I_{DS}=3.5A, V_{GEN}= 10V,$ $R_G=6\Omega$	N		12	ns
			P		16	
t_r	Turn-on Rise Time	P-Channel $V_{DD}=-50V, R_L=30\Omega,$ $I_{DS}=-2.5A, V_{GEN}= -10V,$ $R_G=6\Omega$	N		24	
			P		28	
$t_{d(OFF)}$	Turn-off Delay Time		N		34	
			P		45	
t_f	Turn-off Fall Time		N		18	
			P		24	
Gate Charge Characteristics ^④						
Q_g	Total Gate Charge	N-Channel $V_{DS}=80V, V_{GS}= 10V,$ $I_{DS}=3.5A$	N		18	nC
			P		23	
Q_{gs}	Gate-Source Charge	P-Channel $V_{DS}=-80V, V_{GS}= -10V,$ $I_{DS}=-2.5A$	N		4	
			P		7	
Q_{gd}	Gate-Drain Charge		N		5	
			P		6	

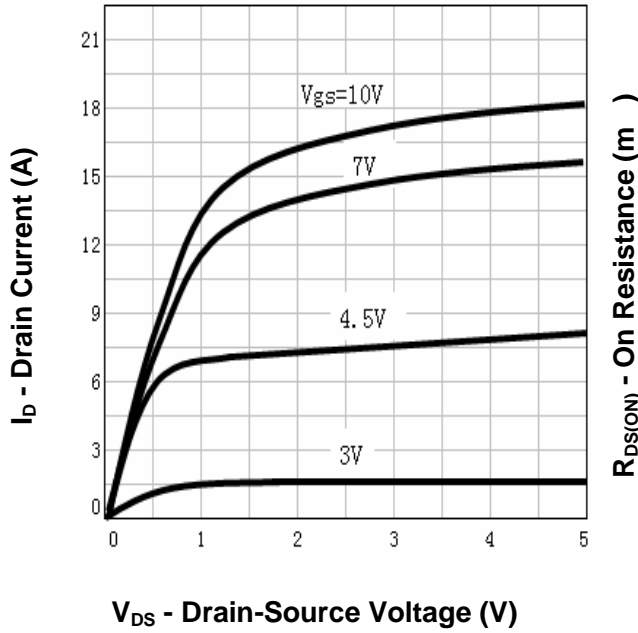
- Notes: ①Pulse width limited by safe operating area.
 ②When mounted on 1 inch square copper board, $t \leq 10\text{sec}$.
 ③Pulse test ; Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 ④Guaranteed by design, not subject to production testing.

Typical Characteristics (N-Channel)

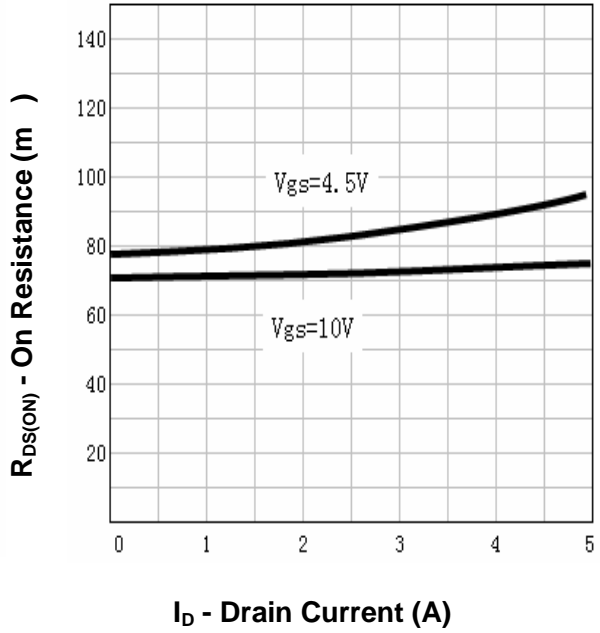


Typical Characteristics(N-Channel)

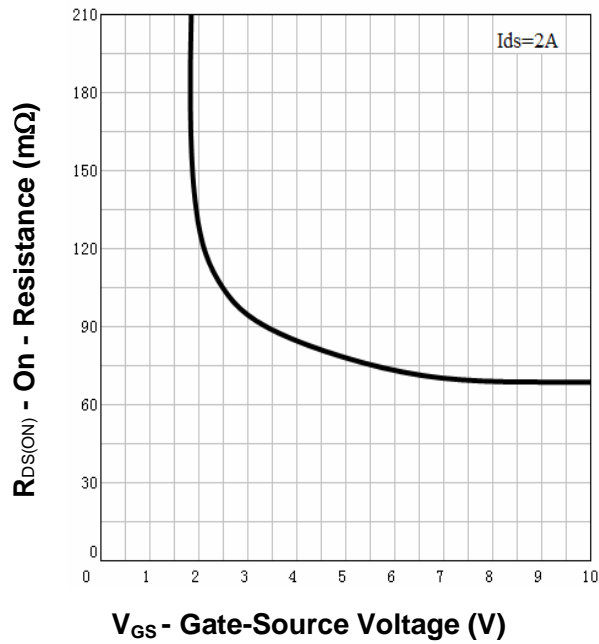
Output Characteristics



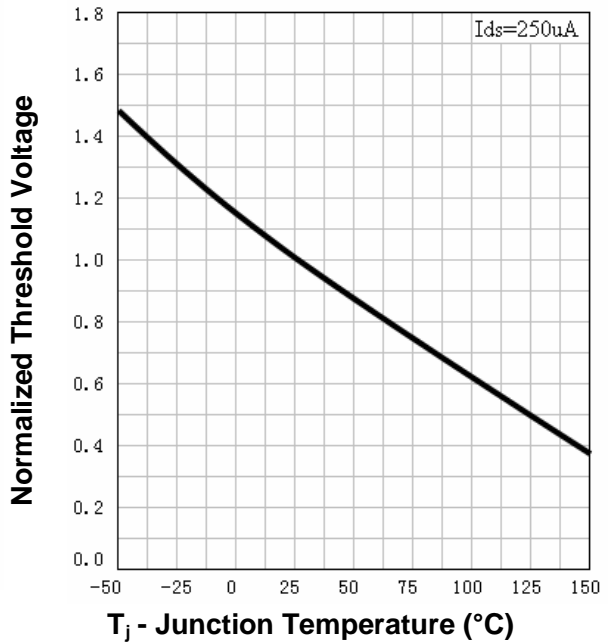
Drain-Source On Resistance



Drain-Source On Resistance

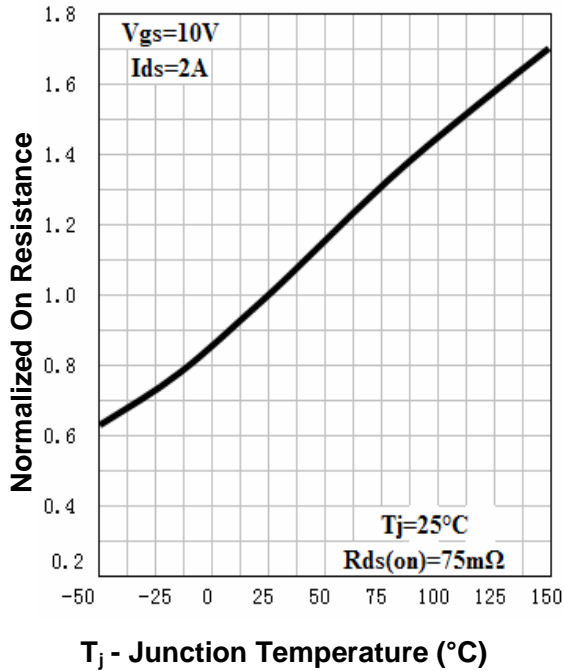


Gate Threshold Voltage

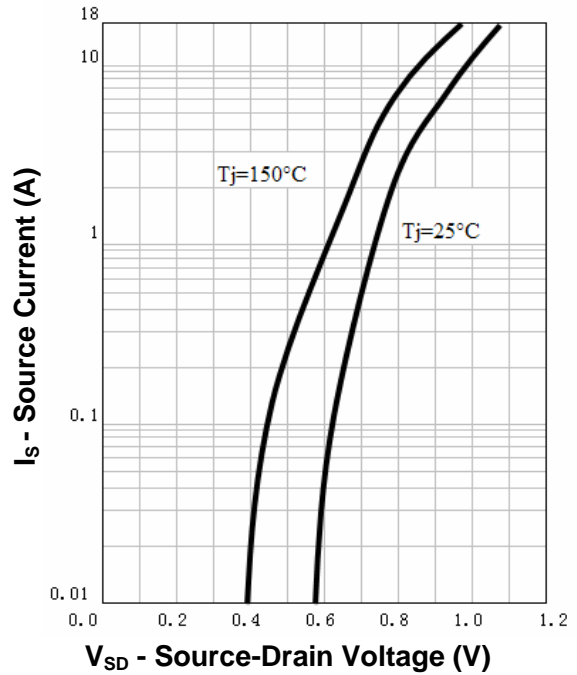


Typical Characteristics(N-Channel)

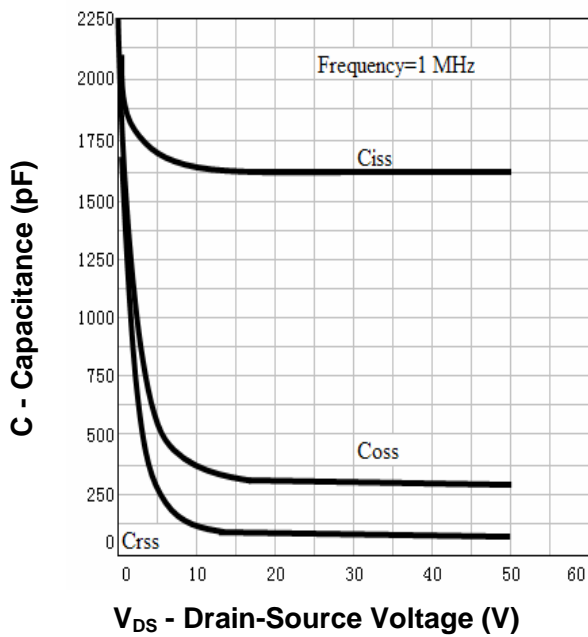
Drain-Source On Resistance



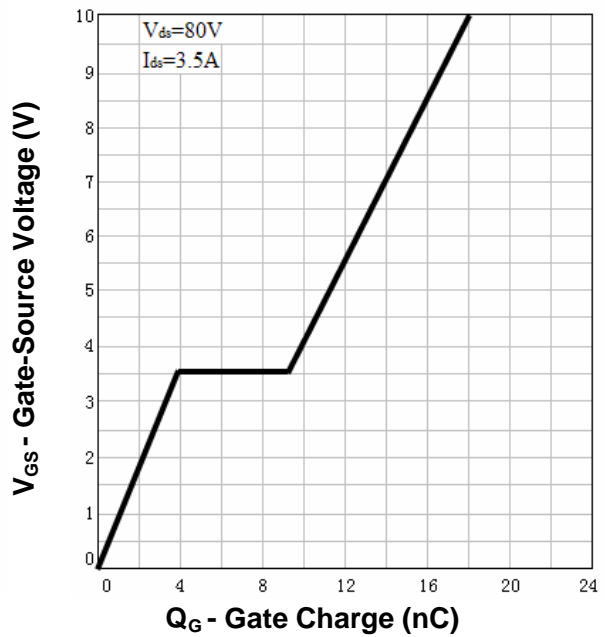
Source-Drain Diode Forward



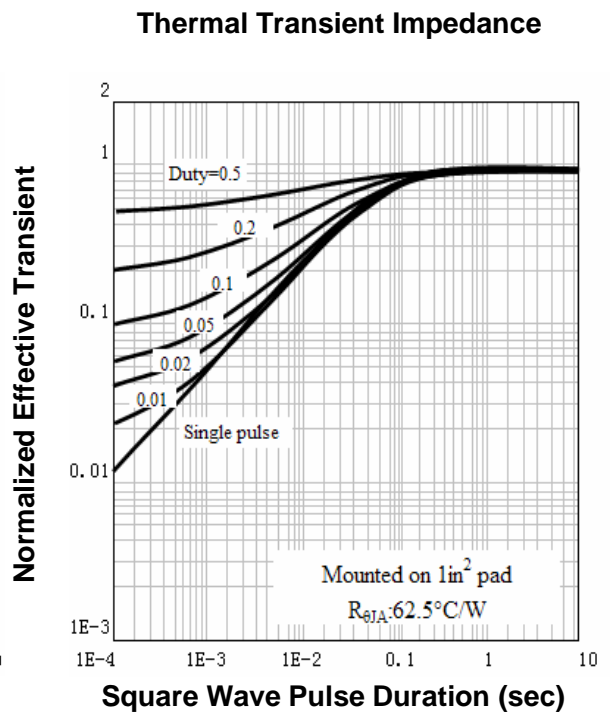
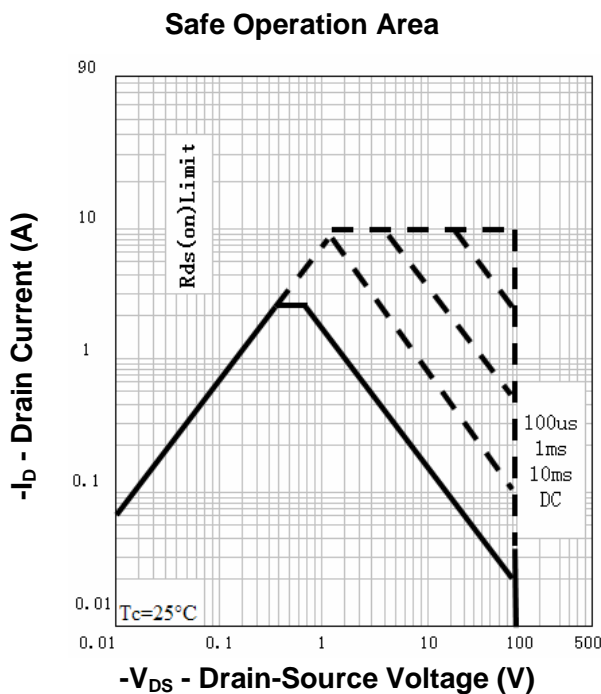
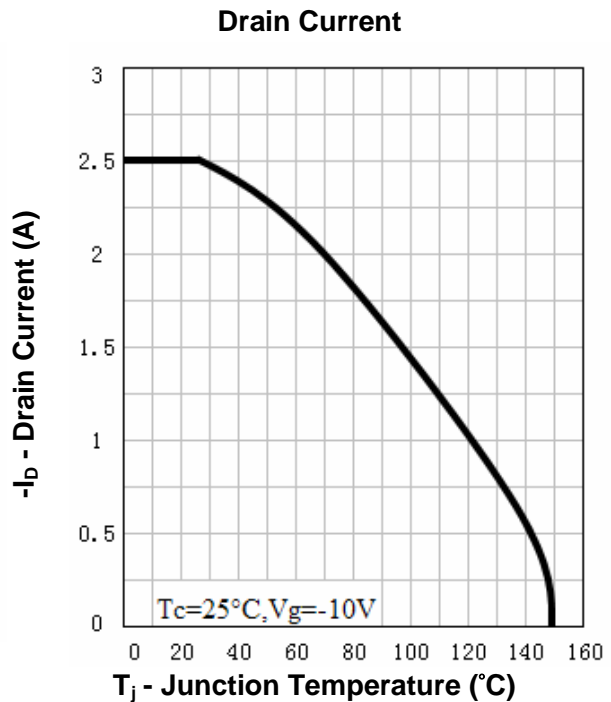
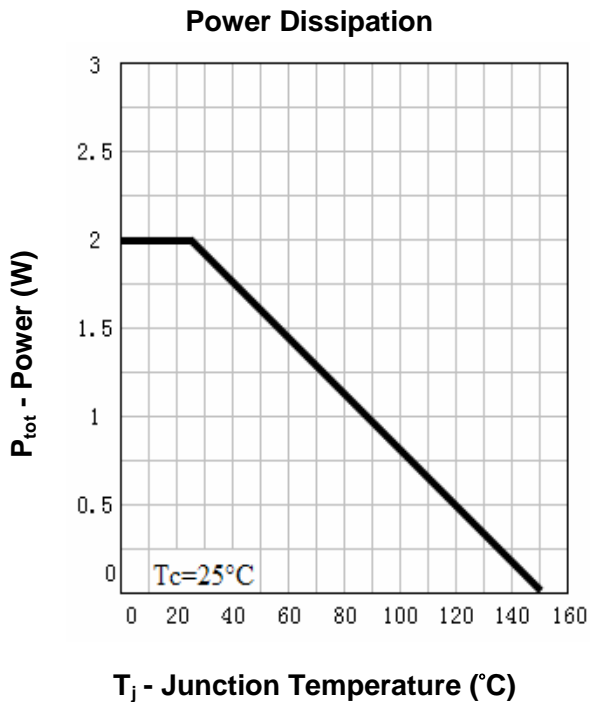
Capacitance



Gate Charge

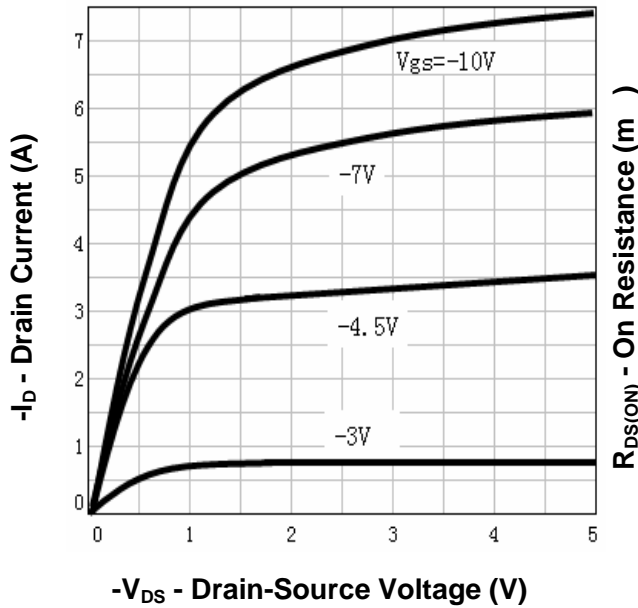


Typical Characteristics(P-Channel)

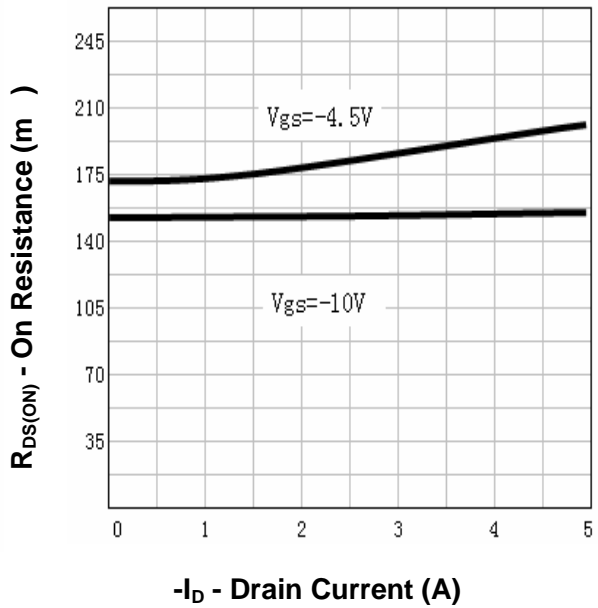


Typical Characteristics(P-Channel)

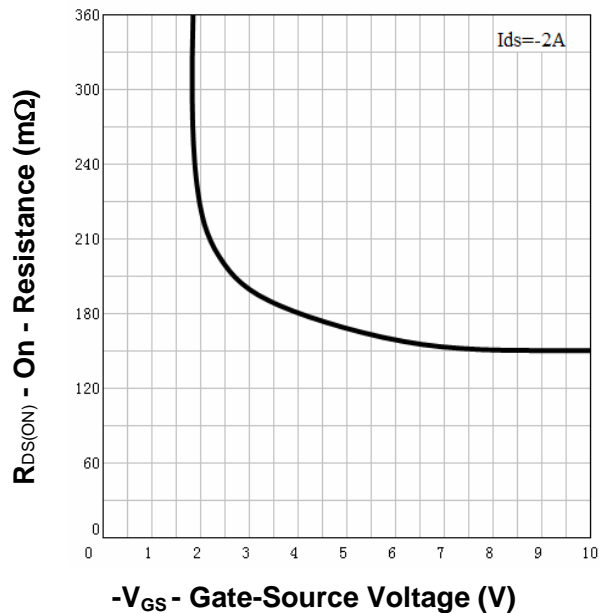
Output Characteristics



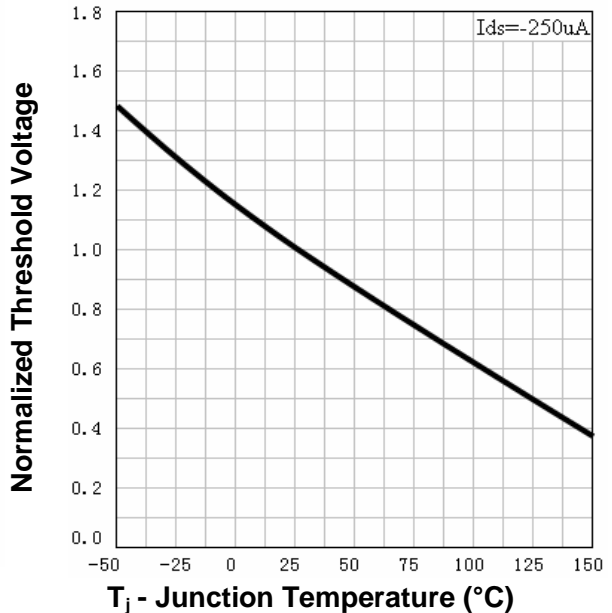
Drain-Source On Resistance



Drain-Source On Resistance

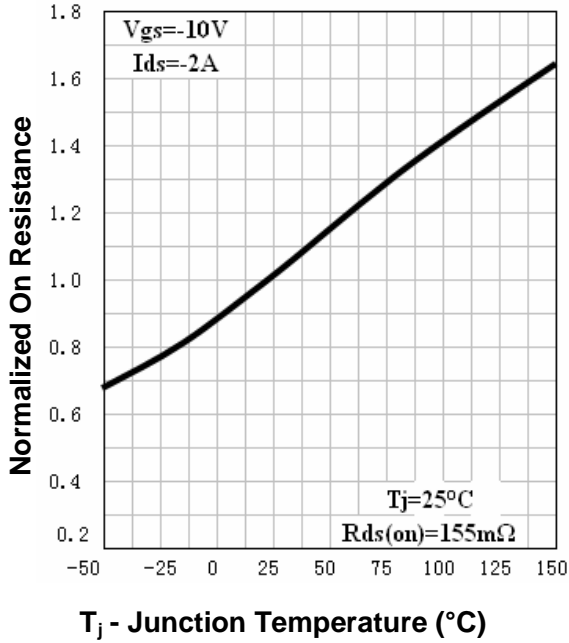


Gate Threshold Voltage

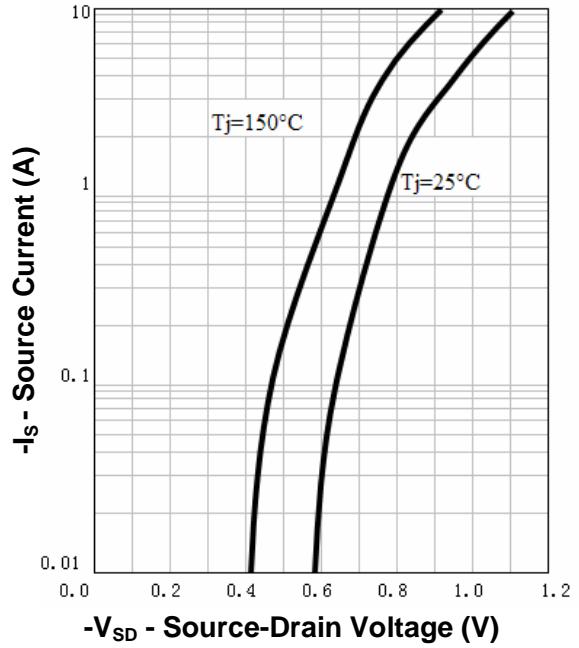


Typical Characteristics(P-Channel)

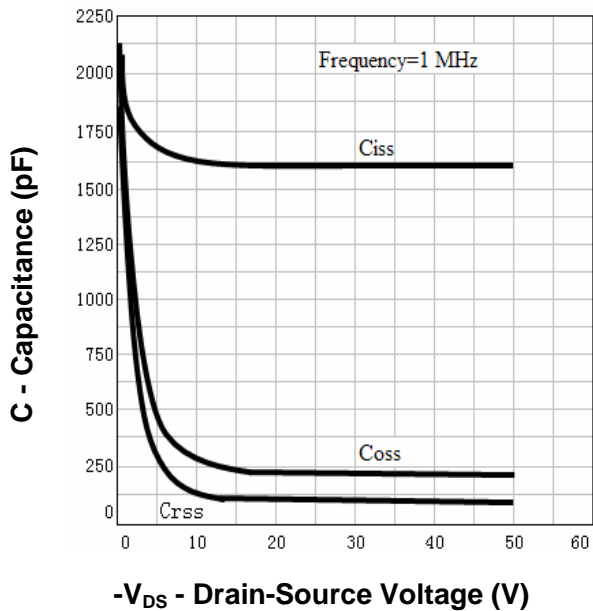
Drain-Source On Resistance



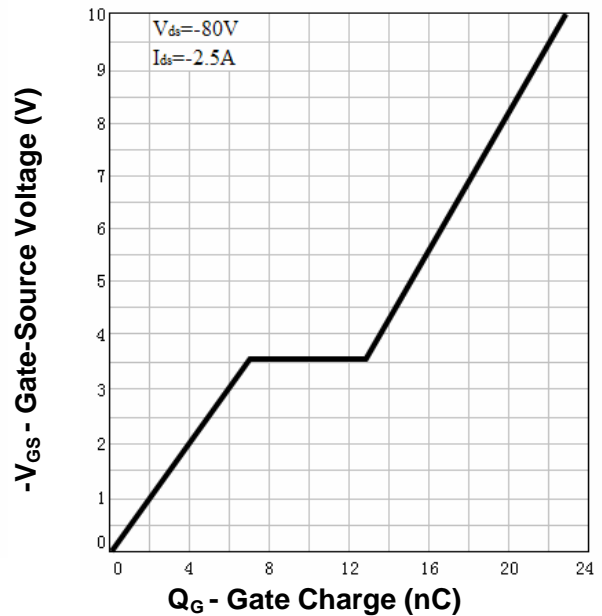
Source-Drain Diode Forward



Capacitance



Gate Charge



Ordering and Marking Information**RU1HC2****Package (Available)**

H : SOP-8

Operating Temperature Range

C : -55 to 150 °C

Assembly Material

G : Green & Lead Free

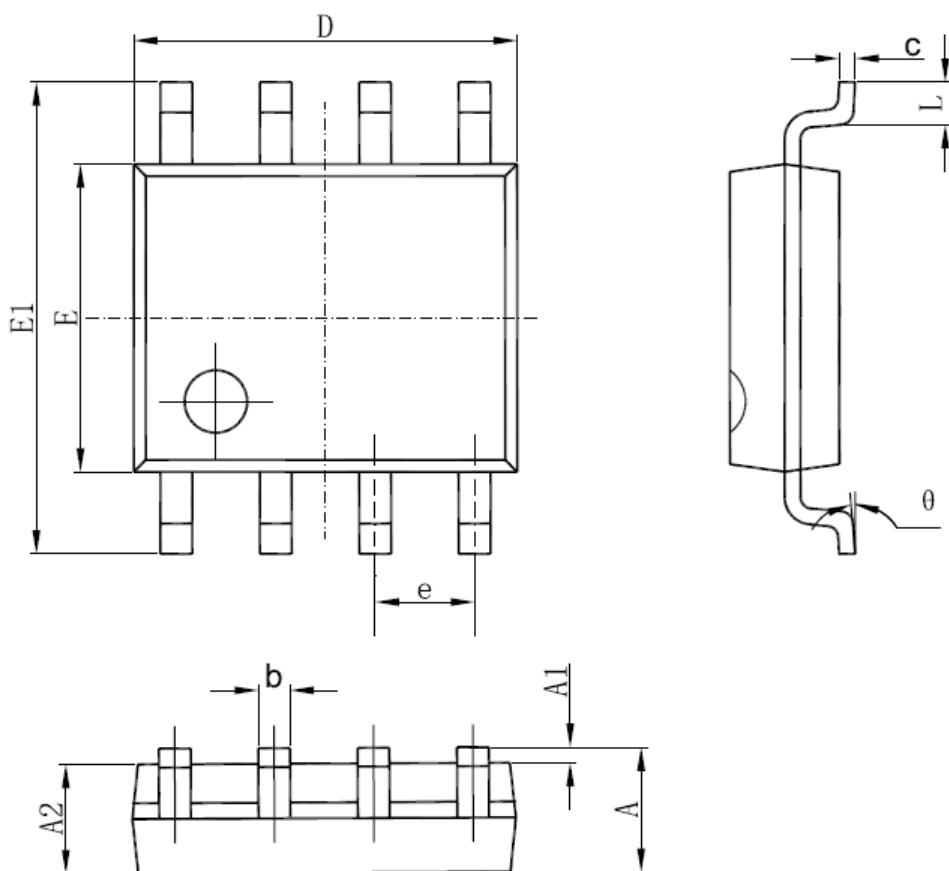
Packaging

T : TUBE

TR : Tape & Reel

Package Information

SOP-8



SYMBOL	MM		INCH		SYMBOL	MM		INCH	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069	E	3.800	4.000	0.150	0.157
A1	0.100	0.250	0.004	0.010	E1	5.800	6.200	0.228	0.244
A2	1.350	1.550	0.053	0.061	e	1.270 (BSC)		0.050 (BSC)	
b	0.330	0.510	0.013	0.020	L	0.400	1.270	0.016	0.050
c	0.170	0.250	0.006	0.010	θ	0°	8°	0°	8°
D	4.700	5.100	0.185	0.200					

ALL DIMENSIONS REFER TO JEDEC STANDARD
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS

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