

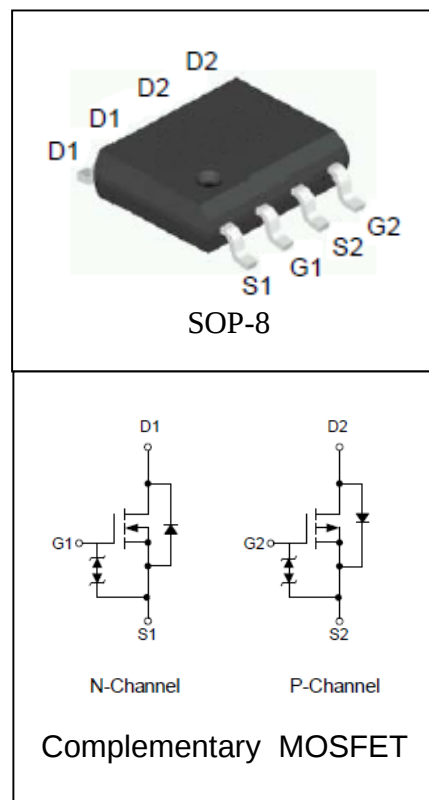
Features

- N-Channel
100V/3.5A,
 $R_{DS(ON)} = 75m\Omega$ (Typ.) @ $V_{GS}=10V$
 $R_{DS(ON)} = 80m\Omega$ (Typ.) @ $V_{GS}=4.5V$
- P-Channel
-100V/-2.5A,
 $R_{DS(ON)} = 155m\Omega$ (Typ.) @ $V_{GS}=-10V$
 $R_{DS(ON)} = 175m\Omega$ (Typ.) @ $V_{GS}=-4.5V$
- 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 $T_A=25^\circ C$	3.5	-2.5	A
Mounted on Large Heat Sink				
I_{DP}	300 μs Pulse Drain Current Tested $T_A=25^\circ C$	14 ^①	-10 ^①	A
I_D	Continuous Drain Current ($V_{GS}=\pm 10V$)	$T_A=25^\circ C$	3.5	A
		$T_A=70^\circ C$	2.9	
P_D	Maximum Power Dissipation	$T_A=25^\circ C$	2	W
		$T_A=70^\circ C$	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)

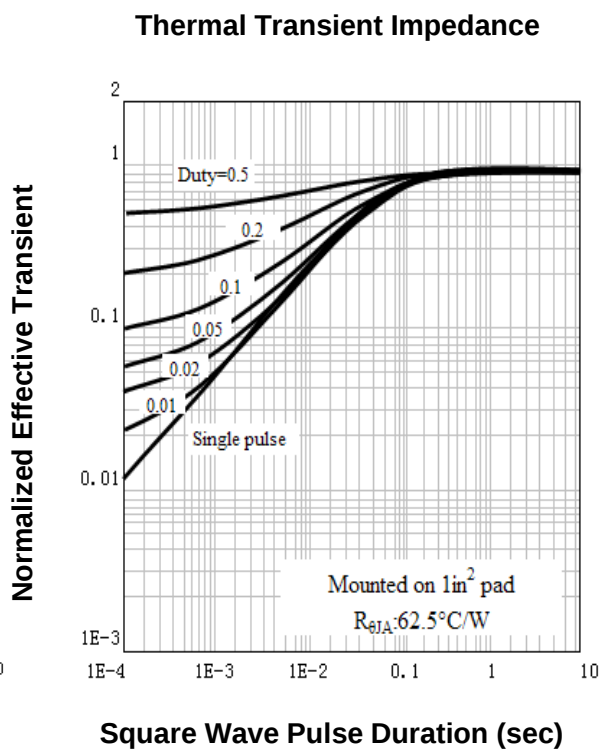
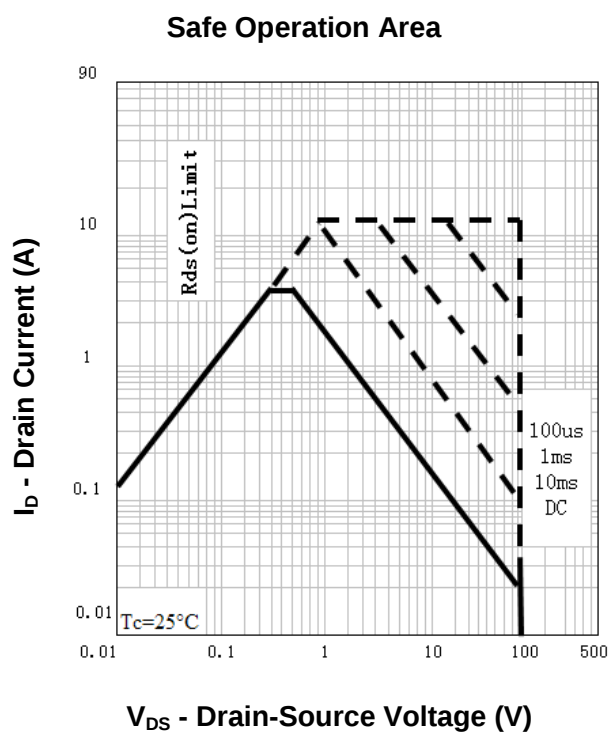
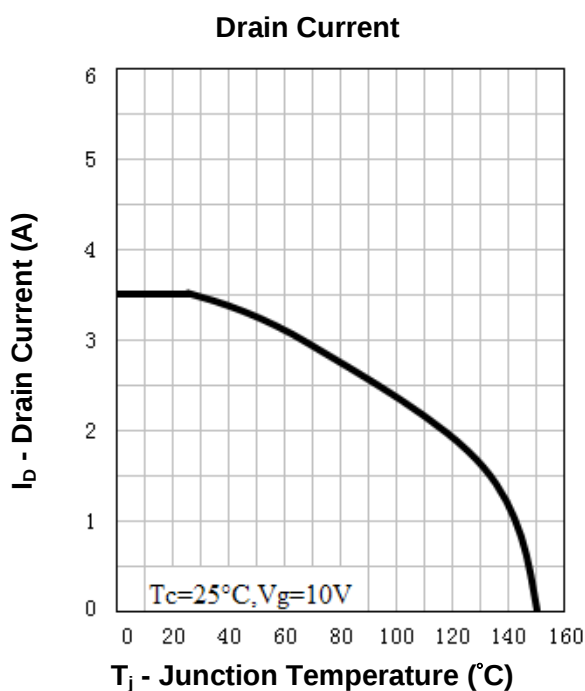
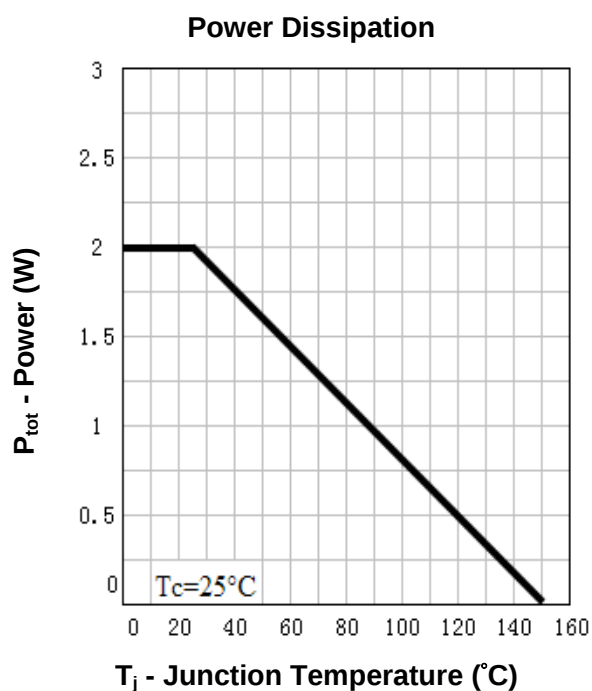
Symbol	Parameter	Test Condition	RU1HC2H			Unit	
			Min.	Typ.	Max.		
Static Characteristics							
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	N	100		V	
		V _{GS} =0V, I _{DS} =-250μA	P	-100			
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V	N		1	μA	
		T _J =85°C			30		
		V _{DS} =-100V, V _{GS} =0V	P		-1		
		T _J =85°C			-30		
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	N	1.2	2.5	V	
		V _{DS} =V _{GS} , I _{DS} =-250μA	P	-1.5	-2.7		
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	N		±10	μA	
		V _{GS} =±16V, V _{DS} =0V	P		±10	μA	
R _{DS(ON)} ③	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =2A	N		75	80	mΩ
		V _{GS} =4.5V, I _{DS} =1.5A			80	85	
		V _{GS} =-10V, I _{DS} =-2A	P		155	160	
		V _{GS} =-4.5V, I _{DS} =-1.5A			175	180	
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/μs	N		42		ns
			P		52		
Q _{rr}	Reverse Recovery Charge	P-Channel I _{SD} =-2.5A, dI _{SD} /dt=100A/μs	N		43		nC
			P		75		

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

④ Dynamic Characteristics							
C _{iss}	Input Capacitance	N-Channel V _{GS} =0V, V _{DS} =50V, Frequency=1.0MHz P-Channel V _{GS} =0V, V _{DS} =-50V, Frequency=1.0MHz	N		1520		pF
			P		1630		
C _{oss}	Output Capacitance		N		134		
			P		191		
C _{rss}	Reverse Transfer Capacitance		N		62		
			P		83		
t _{d(ON)}	Turn-on Delay Time	N-Channel V _{DD} =50V, R _L =30Ω, I _{DS} =3.5A, V _{GEN} = 10V, R _G =6Ω	N		12		ns
t _r	Turn-on Rise Time		P		16		
			N		24		
t _{d(OFF)}	Turn-off Delay Time		P		28		
		N		34			
t _f	Turn-off Fall Time	P		45			
		N		18			
		P		24			
④ Gate Charge Characteristics							
Q _g	Total Gate Charge	N-Channel V _{DS} =80V, V _{GS} = 10V, I _{DS} =3.5A P-Channel V _{DS} =-80V, V _{GS} = -10V, I _{DS} =-2.5A	N		18		nC
			P		23		
Q _{gs}	Gate-Source Charge		N		4		
			P		7		
Q _{gd}	Gate-Drain Charge		N		5		
			P		6		

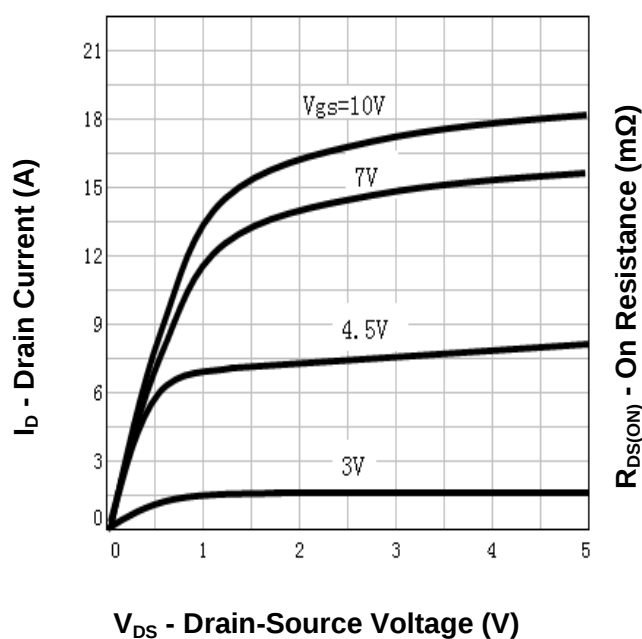
- Notes: ①Pulse width limited by safe operating area.
 ②When mounted on 1 inch square copper board, t ≤10sec.
 ③Pulse test ; Pulse width ≤300μs, duty cycle ≤2%.
 ④Guaranteed by design, not subject to production testing.

Typical Characteristics (N-Channel)

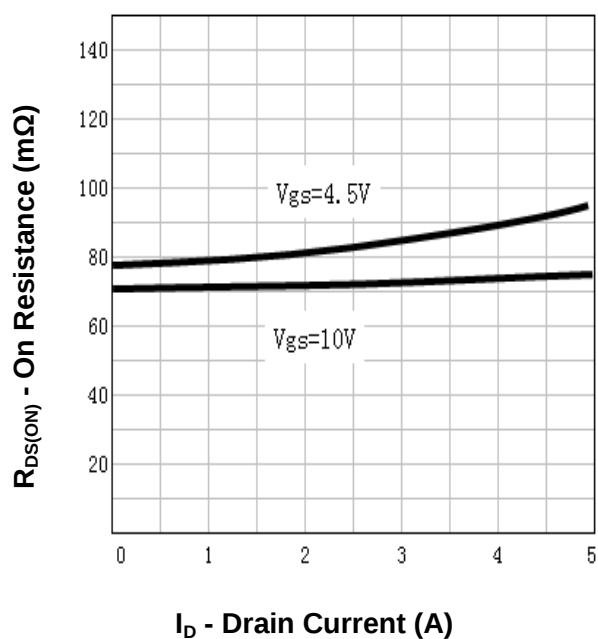


Typical Characteristics(N-Channel)

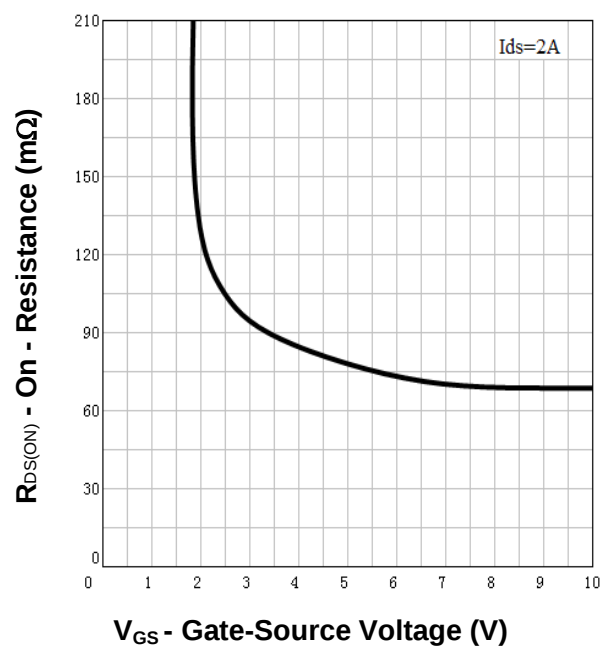
Output Characteristics



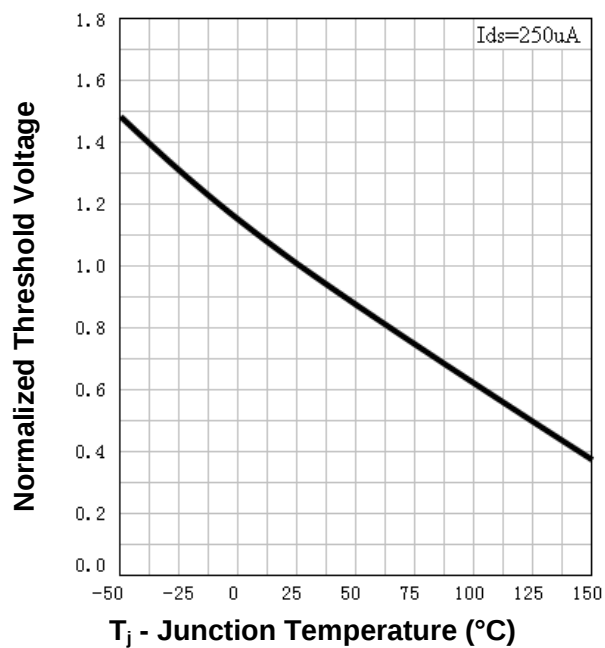
Drain-Source On Resistance



Drain-Source On Resistance

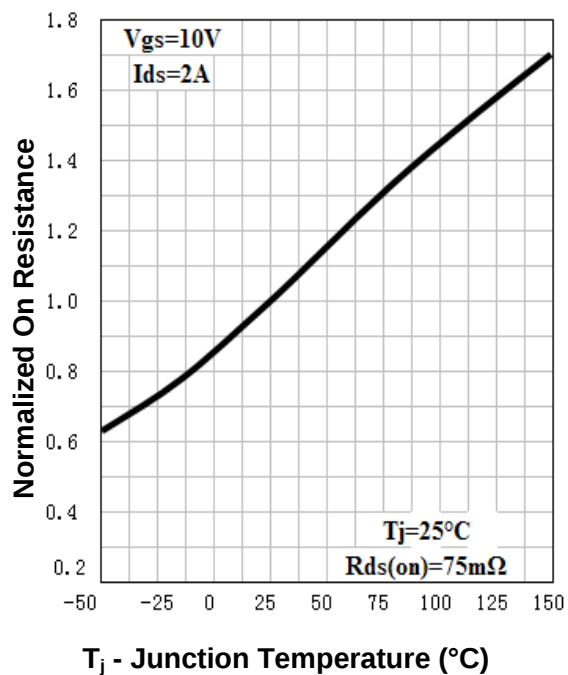


Gate Threshold Voltage

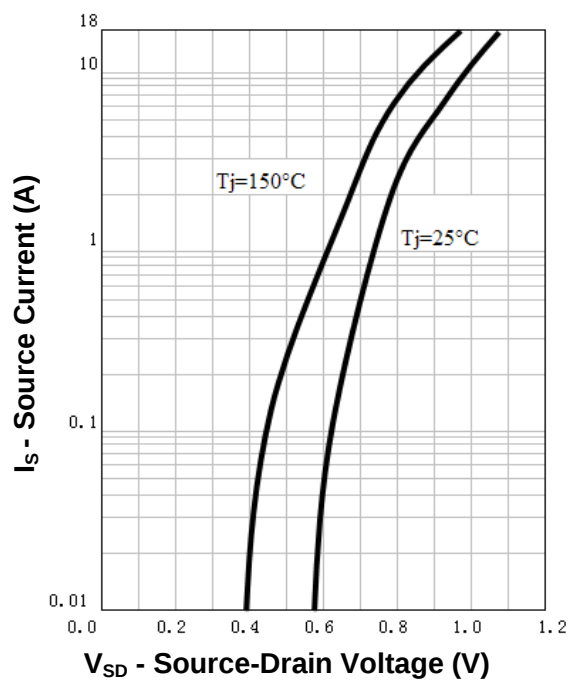


Typical Characteristics(N-Channel)

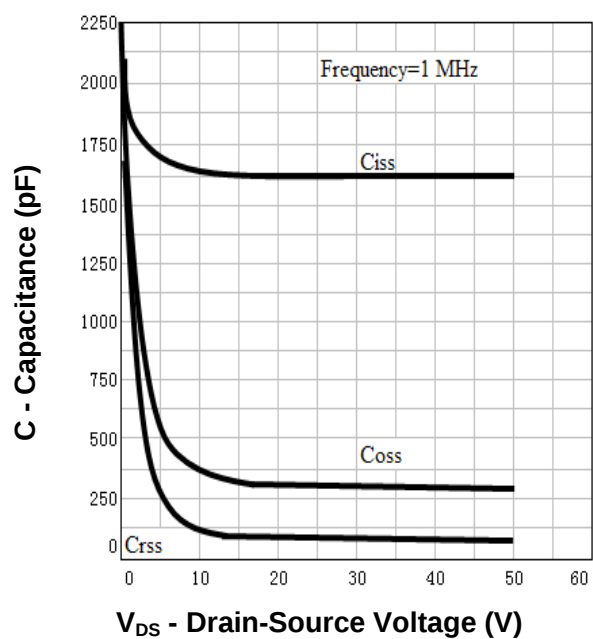
Drain-Source On Resistance



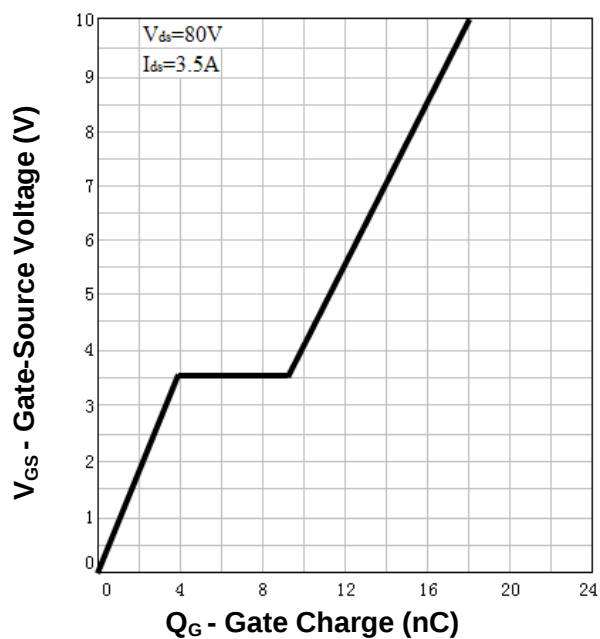
Source-Drain Diode Forward



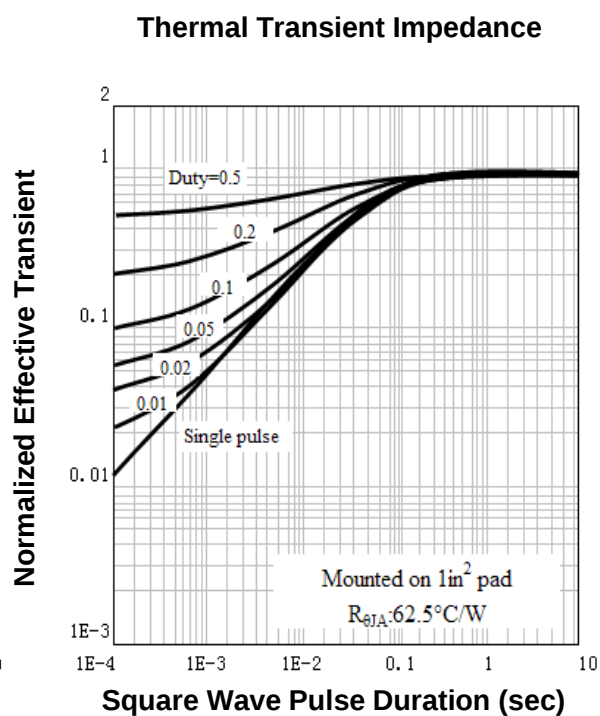
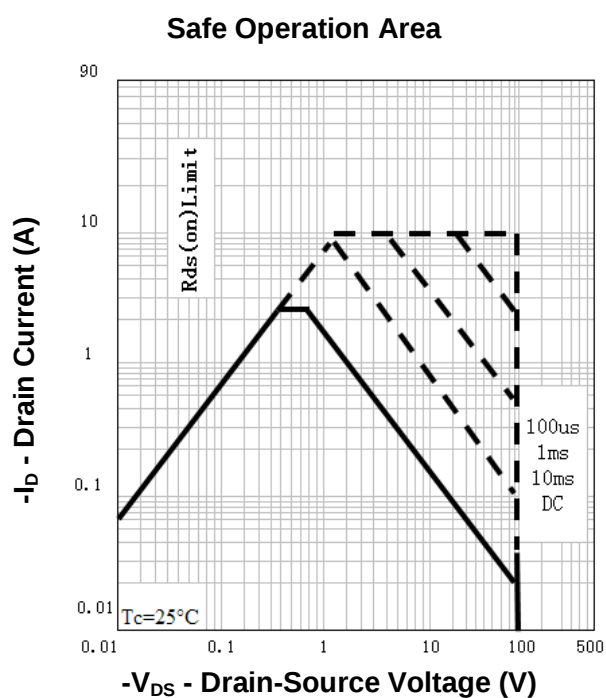
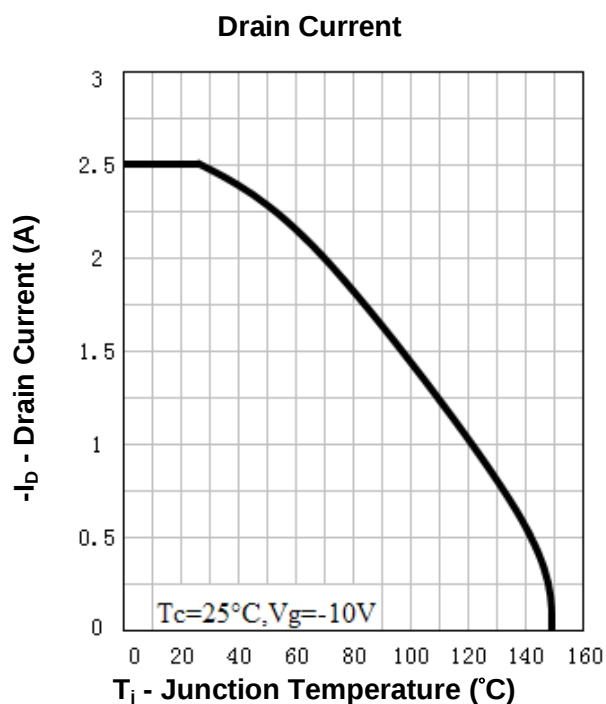
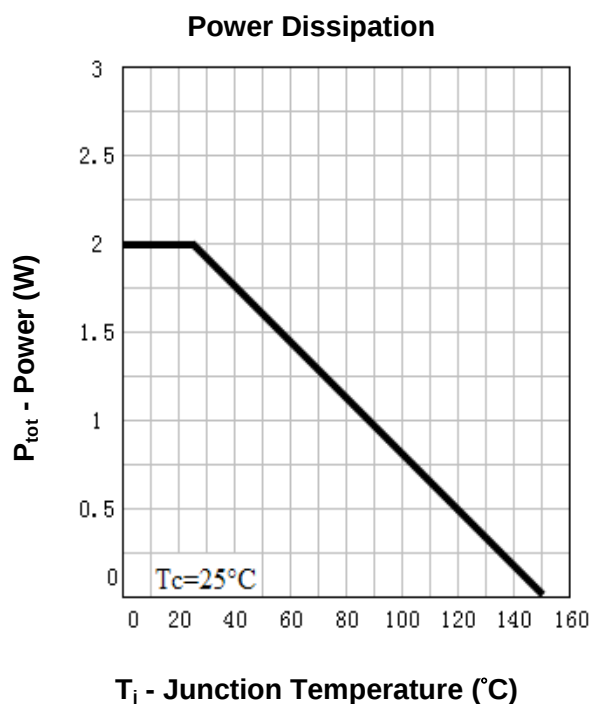
Capacitance



Gate Charge

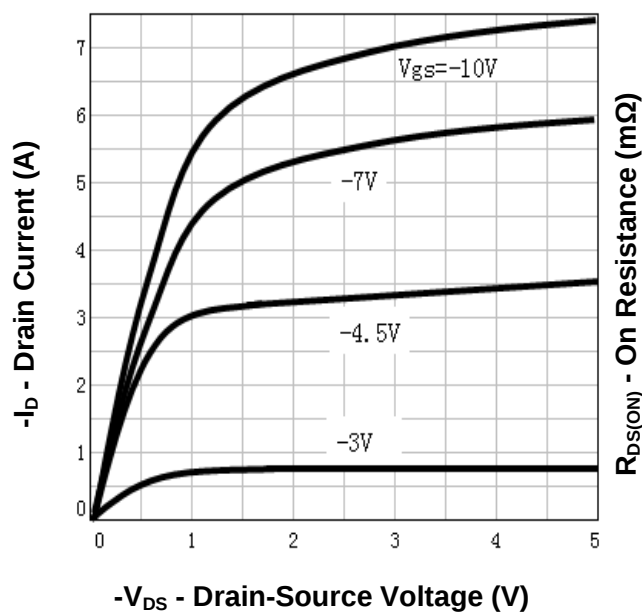


Typical Characteristics(P-Channel)

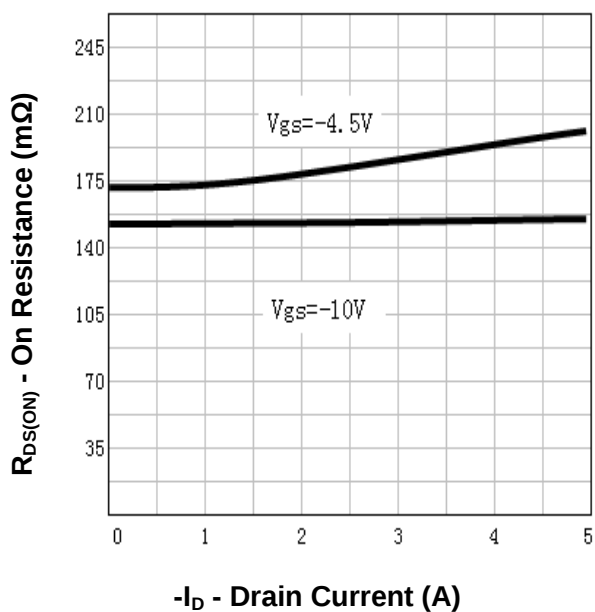


Typical Characteristics(P-Channel)

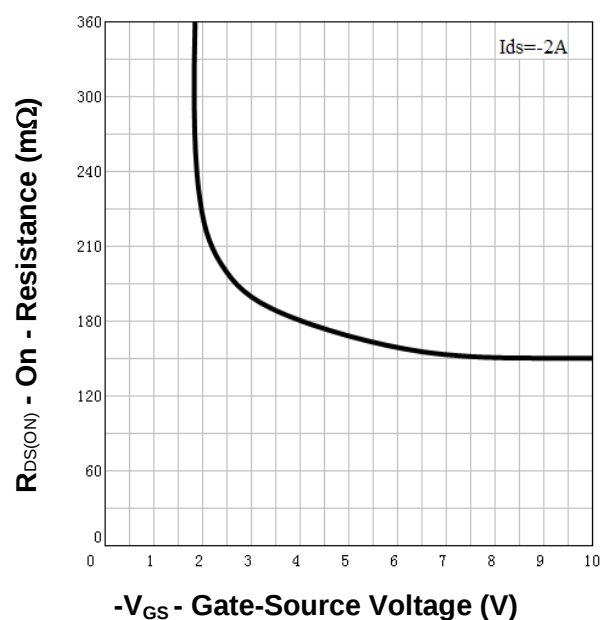
Output Characteristics



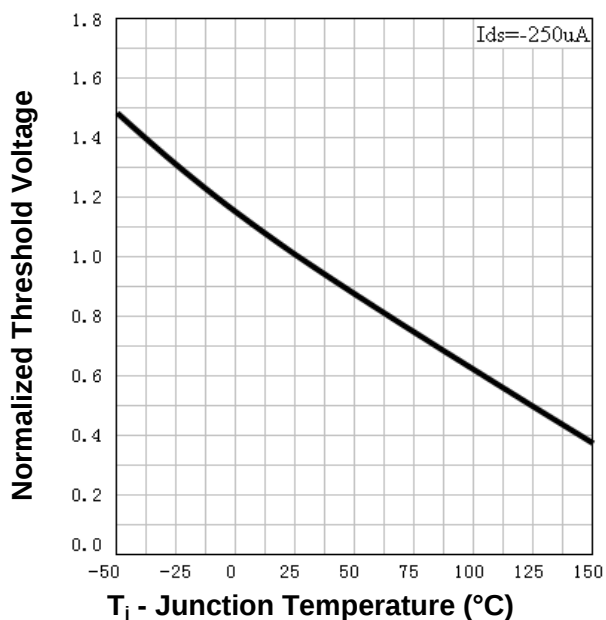
Drain-Source On Resistance



Drain-Source On Resistance

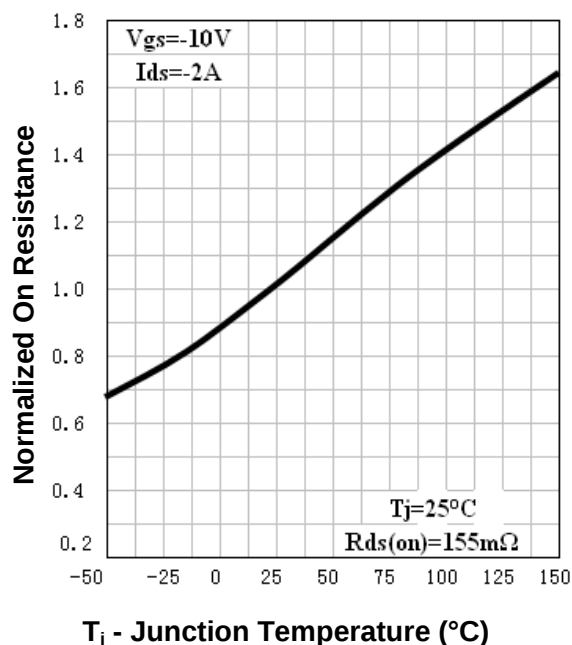


Gate Threshold Voltage

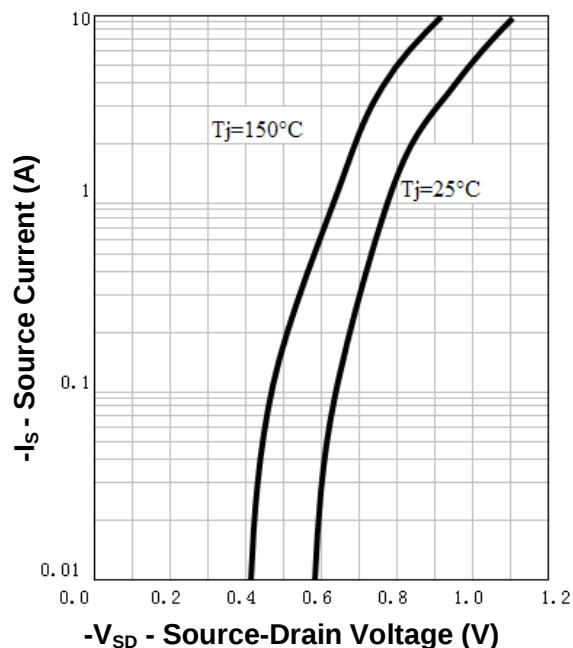


Typical Characteristics(P-Channel)

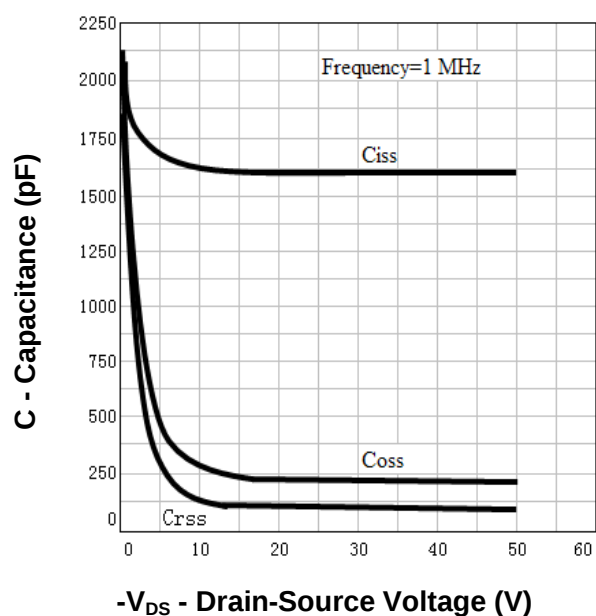
Drain-Source On Resistance



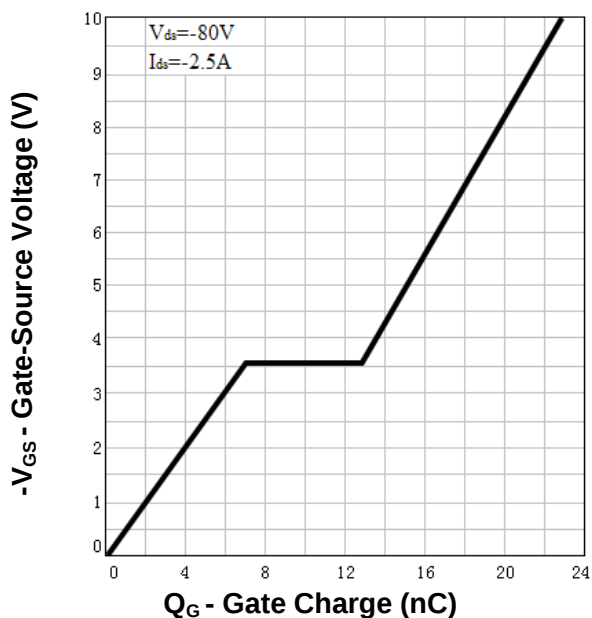
Source-Drain Diode Forward



Capacitance



Gate Charge

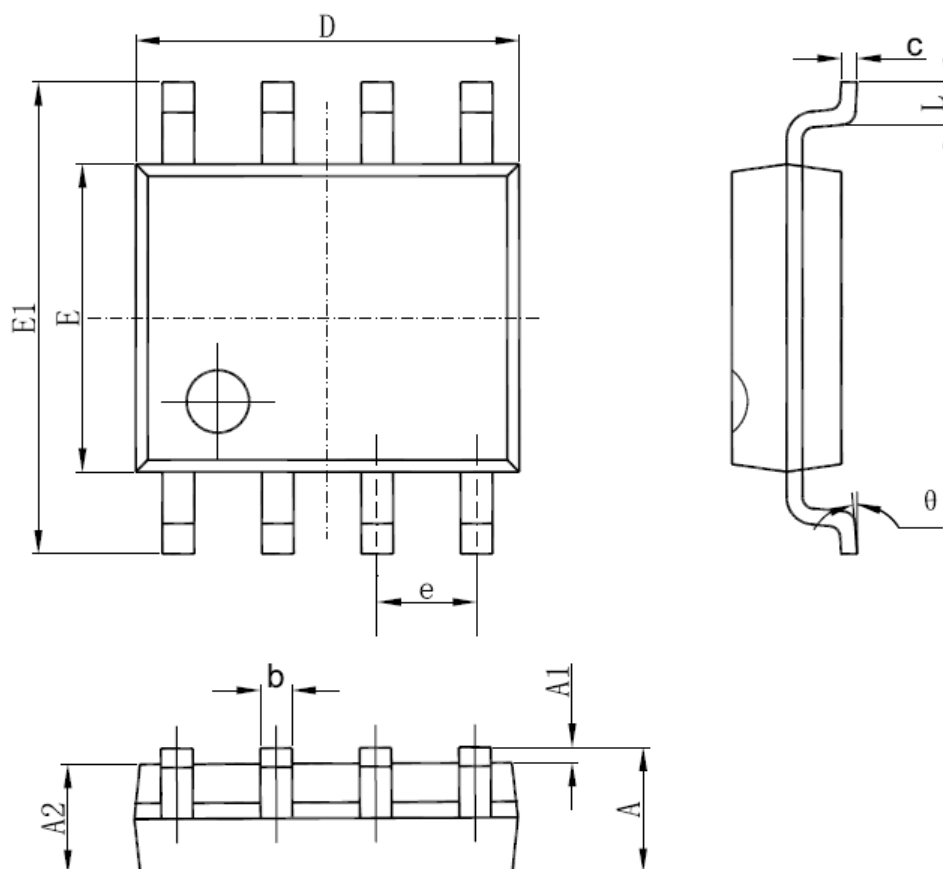


Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU1HC2H	RU1HC2H	SOP-8	Tape&Reel	2500	13’’	12mm

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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