

20V, 21mΩ, 4A, Single N-Channel

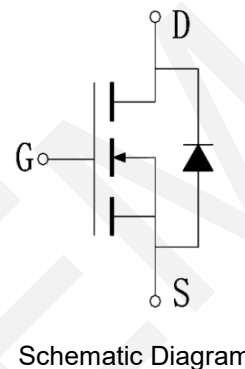
1.Features

- ◆ 20V MOSFET technology
- ◆ Low on-state resistance
- ◆ Fast switching
- ◆ $V_{GS} \pm 12V$

V_{DS}	$R_{DS(on)}$ Typ.	I_D Max.
20V	21mΩ @ 4.5V	4A
	33mΩ @ 2.5V	

2.Applications

- ◆ Power Switching Application
- ◆ Load Switching



3.Absolute Max Ratings at $T_a=25^\circ C$ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	20	V
Gate to Source Voltage	V_{GSS}	± 12	V
Drain Current (DC)	I_D	4	A
Drain Current (Pulse), $PW \leq 300\mu s$	I_{DP}	10.8	A
Total Dissipation	P_D	0.9	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

4.Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient (Note 2)	$R_{\theta JA}$	125	$^\circ C/W$

Note 2: When mounted on 1 inch square copper board $t \leq 10$ sec The value in any given application depends on the user's specific board design.

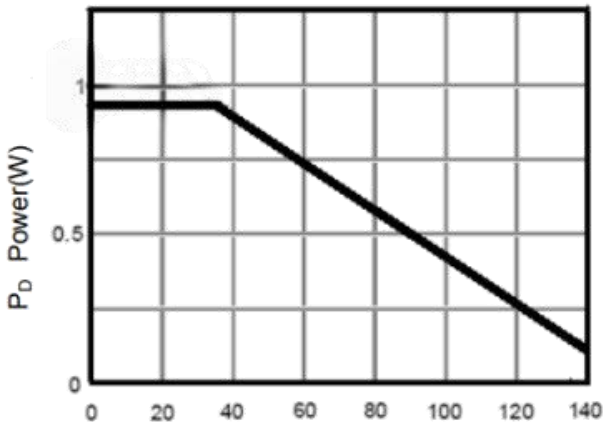
5. Electrical Characteristics at Ta=25°C (Note 3)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	20	22		V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate to Source Leakage Current	I_{GSS1}	$V_{GS} = \pm 12V, V_{SS} = 0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.4	0.8	1	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = 4A, V_{GS} = 4.5V$		21	28	m Ω
		$I_D = 2A, V_{GS} = 2.5V$		33	38	m Ω
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $V_{DS}=10V,$ Frequency=1.0MHz		300		pF
Output Capacitance	C_{oss}			120		pF
Reverse Transfer Capacitance	C_{rss}			80		pF
Turn-ON Delay Time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 2.9A,$ $V_{GEN} = 4.5V, R_G = 6\Omega$		10		ns
Rise Time	t_r			50		ns
Turn-OFF Delay Time	$t_{d(off)}$			17		ns
Fall Time	t_f			10		ns
Total Gate Charge	Q_g	$V_{DS} = 10V,$ $V_{GS} = 4.5V,$ $I_{DS} = 2.9A$		4		nC
	Q_{gs}			0.65		nC
	Q_{gd}			1.2		nC
Diode Forward Voltage	V_{FSD}	$I_S = 2.9A, V_{GS} = 0V$			1.2	V

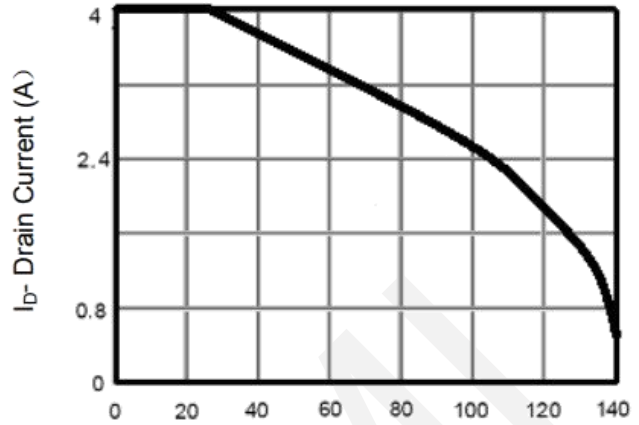
Note 3: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



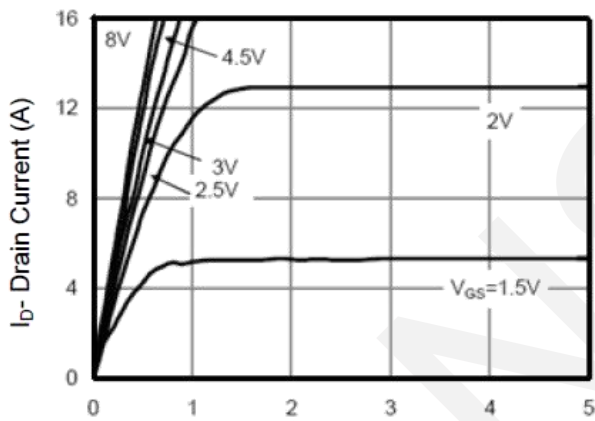
6. Typical electrical and thermal characteristics



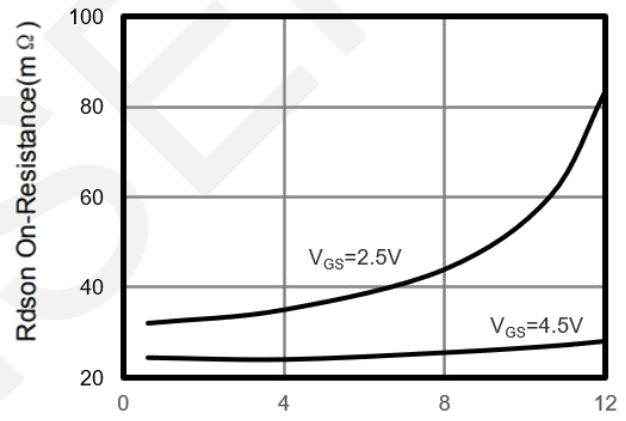
T_J -Junction Temperature($^{\circ}C$)
Power Dissipation



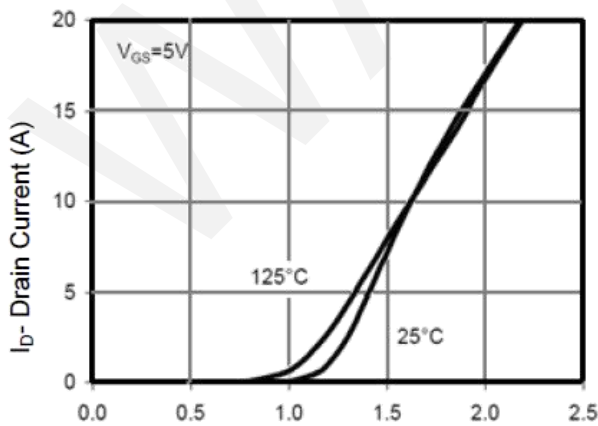
T_J -Junction Temperature($^{\circ}C$)
Drain Current



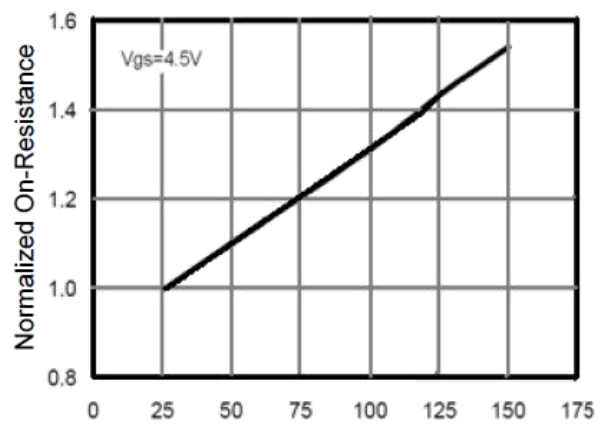
V_{DS} Drain-Source Voltage (V)
Output Characteristics



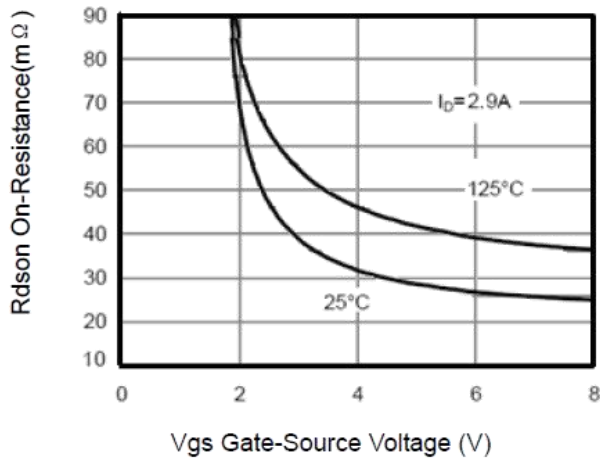
I_D - Drain Current (A)
Drain-Source On-Resistance



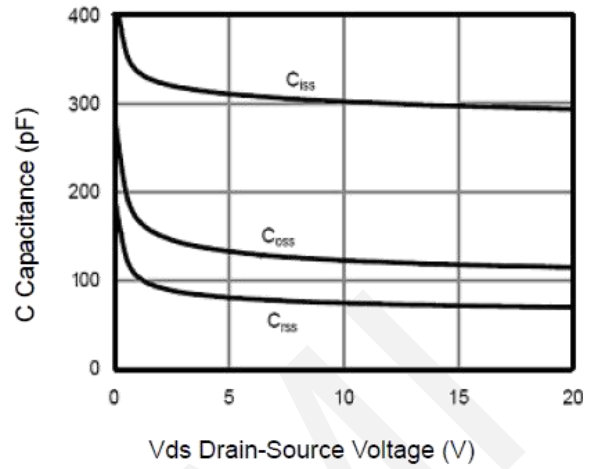
V_{GS} Gate-Source Voltage (V)
Transfer Characteristics



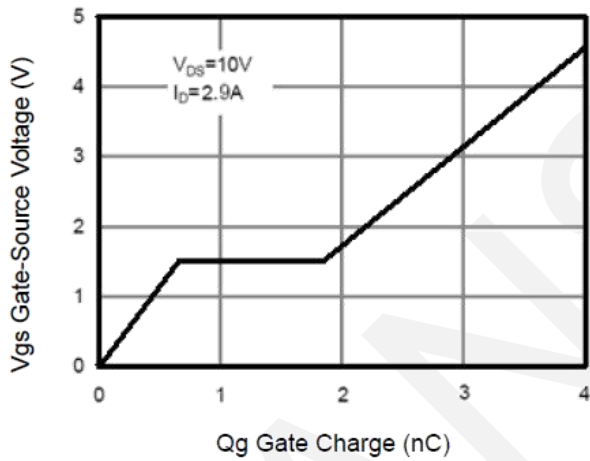
T_J -Junction Temperature($^{\circ}C$)
Drain-Source On-Resistance



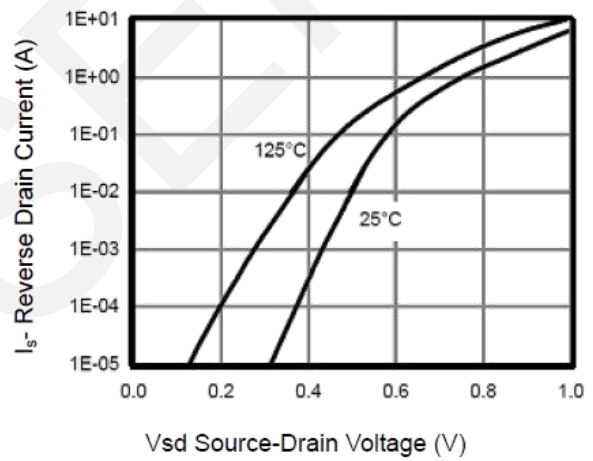
Rdson vs Vgs



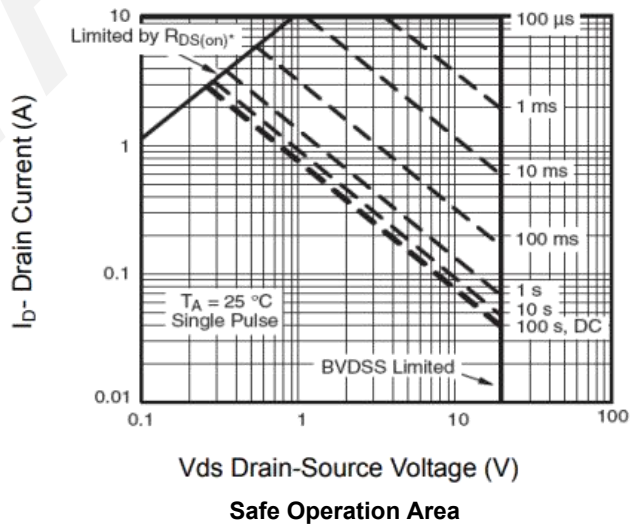
Capacitance vs Vds



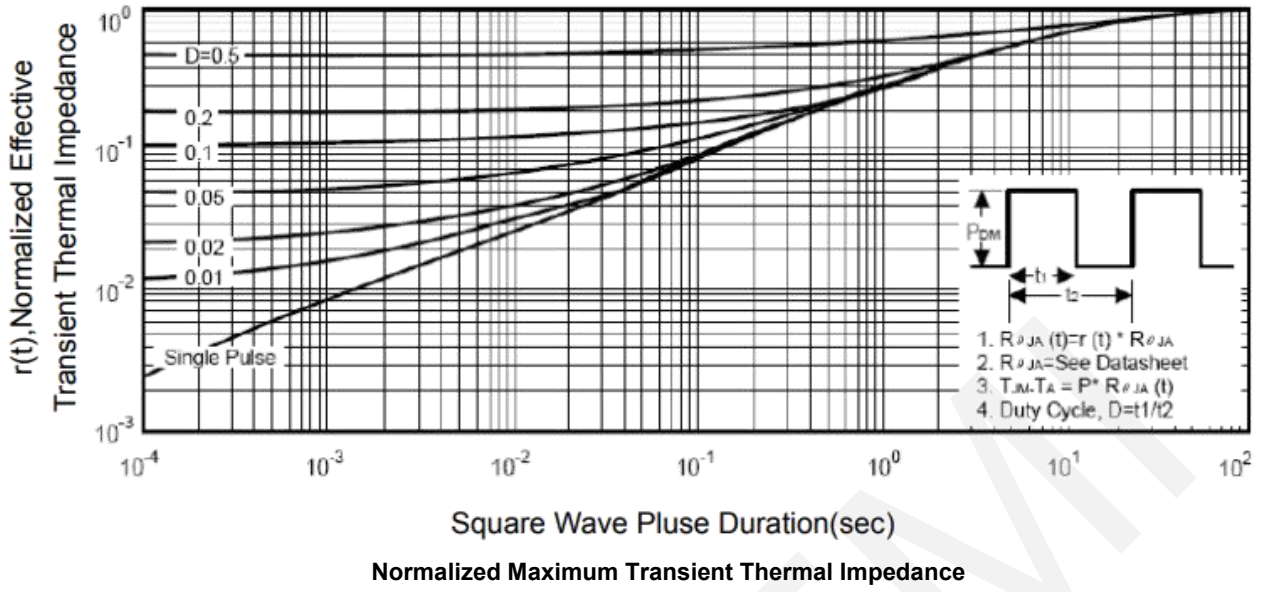
Gate Charge



Source- Drain Diode Forward

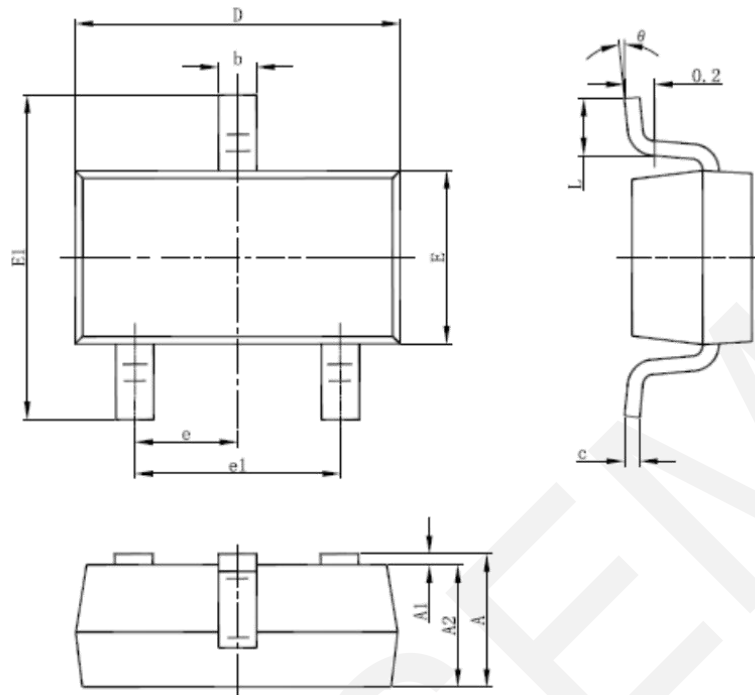


Safe Operation Area





7.Package Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

8. Important Notice

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