

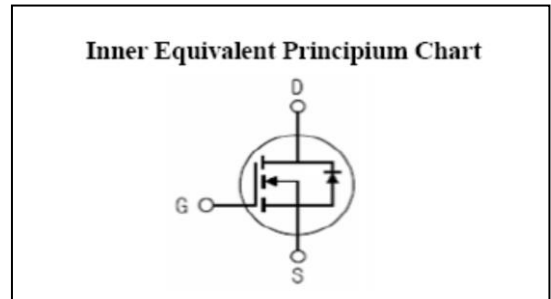
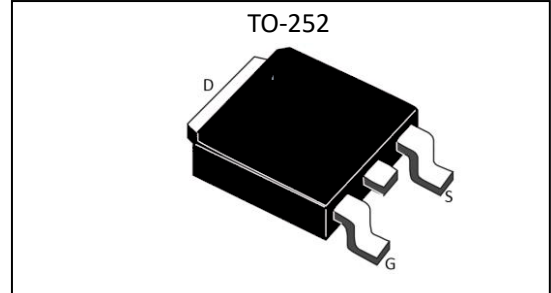
**Features:**

- Fast Switching
- Low ON Resistance ( $R_{dson} \leq 55\Omega$ )
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

**Applications:**

- Power switch circuit of adaptor and charger

$V_{DSS}$	1000	V
$I_D$	0.5	A
$P_D(T_C=25^\circ C)$	25	W
$R_{DS(ON).TYPE}$	40	$\Omega$



**Absolute** ( $T_c=25^\circ C$  unless otherwise specified):

Symbol	Parameter	Rating	Units
$V_{DSS}$	Drain-to-Source Voltage	1000	V
$I_D$	Continuous Drain Current	0.5	A
	Continuous Drain Current $T_C=100^\circ C$	0.17	A
$I_{DM}^{a1}$	Pulsed Drain Current	1.5	A
$V_{GS}$	Gate-to-Source Voltage	$\pm 30$	V
$E_{AS}^{a2}$	Single Pulse Avalanche Energy	12	mJ
$E_{AR}^{a1}$	Avalanche Energy ,Repetitive	4	mJ
$I_{AR}^{a1}$	Avalanche Current	0.3	A
$dv/dt^{a3}$	Peak Diode Recovery $dv/dt$	5.0	V/ns
$P_D$	Power Dissipation	25	W
$T_J, T_{stg}$	Operating Junction and Storage Temperature Range	150, -55 to 150	$^\circ C$
$T_L$	Maximum Temperature for Soldering	300	$^\circ C$

Caution Stresses greater than those in the "Absolute Maximum Ratings" may cause permanent damage to the device

**Thermal Characteristics**

Symbol	Parameter	Rating	Units
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case	5.0	°C/ W
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	100	°C/ W

**Electrical Characteristics (T<sub>c</sub>= 25°C unless otherwise specified):**

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V <sub>DSS</sub>	Drain to Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	1000	--	--	V
ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Bvdss Temperature Coefficient	I <sub>D</sub> =250uA, Reference 25°C	--	0.51	--	V/°C
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> = 1000V, V <sub>GS</sub> =0V, T <sub>a</sub> =25°C	--	--	1	μA
		V <sub>DS</sub> = 800V, V <sub>GS</sub> =0V, T <sub>a</sub> = 125°C	--	--	100	
I <sub>GSS(F)</sub>	Gate to Source Forward Leakage	V <sub>GS</sub> = +30V	--	--	100	nA
I <sub>GSS(R)</sub>	Gate to Source Reverse Leakage	V <sub>GS</sub> = -30V	--	--	-100	nA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
R <sub>DS(ON)</sub>	Drain-to-Source On-Resistance	V <sub>GS</sub> = 10V, I <sub>D</sub> =0.25A	--	--	55	Ω
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2.0	--	4.0	V
g <sub>fs</sub>	Forward Trans conductance	V <sub>DS</sub> = 15V, I <sub>D</sub> =0.25A	--	0.42	--	S
Pulse width < 380μs; duty cycle < 2%.						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V V <sub>DS</sub> =25V f=1.0MHz	--	70	--	pF
C <sub>oss</sub>	Output Capacitance		--	14.5	--	
C <sub>rss</sub>	Reverse Transfer Capacitance		--	2.8	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
t <sub>d(ON)</sub>	Turn-on Delay Time	I <sub>D</sub> =0.5A, V <sub>DD</sub> =500V V <sub>GS</sub> = 10V, R <sub>g</sub> =4.7Ω	--	19	--	ns
t <sub>r</sub>	Rise Time		--	11.5	--	
t <sub>d(OFF)</sub>	Turn-Off Delay Time		--	48	--	
t <sub>f</sub>	Fall Time		--	16.5	--	
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> =0.5A, V <sub>DD</sub> =500V V <sub>GS</sub> = 10V	--	10.0	--	nC
Q <sub>gs</sub>	Gate to Source Charge		--	0.7	--	
Q <sub>gd</sub>	Gate to Drain ( "Miller" ) Charge		--	7.2	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$I_{SD}$	Continuous Source Current (Body Diode)		--	--	0.5	A
$I_{SM}$	Maximum Pulsed Current (Body Diode)		--	--	1.5	A
$V_{SD}$	Diode Forward Voltage	$I_S=0.5A, V_{GS}=0V$	--	--	1.5	V
$t_{rr}$	Reverse Recovery Time	$I_S=0.5A, T_j=25^\circ C$	--	374	--	ns
$Q_{rr}$	Reverse Recovery Charge	$di_F/dt=100A/\mu s, V_{GS}=0V$	--	735	--	$\mu C$

a1: Repetitive rating; pulse width limited by maximum junction temperature

a2:  $L=10mH, I_D=1.5A$ , Start  $T_j=25^\circ C$

a3:  $I_{SD}=0.5A, di/dt \leq 100A/\mu s, V_{DD} \leq BV_{DS}$ , Start  $T_j=25^\circ C$

Characteristics Curve:

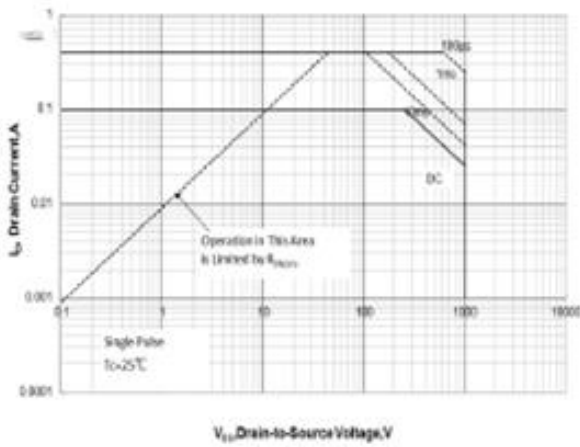


Figure 1 Maximum Forward Bias Safe Operating Area

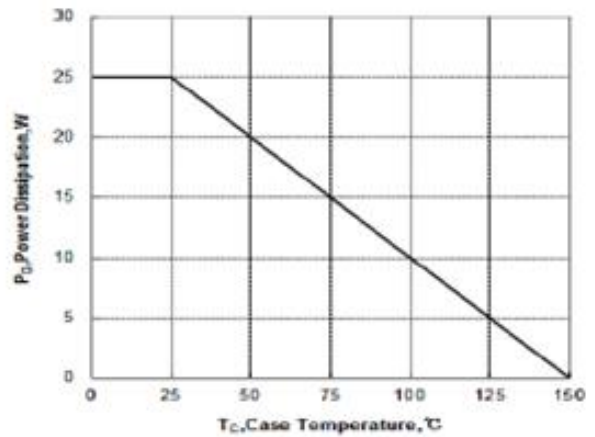


Figure 2 Maximum Power dissipation vs Case Temperature

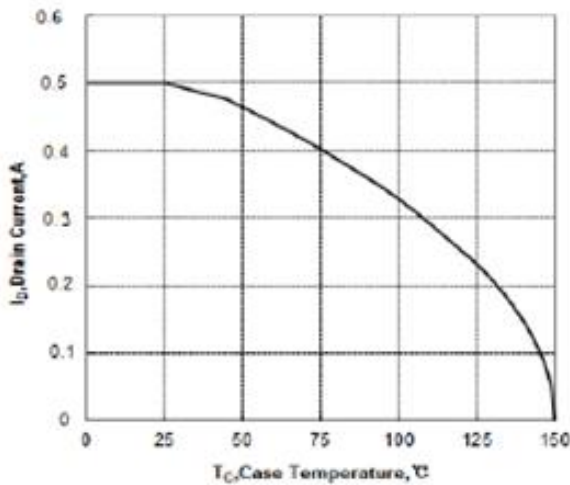


Figure 3 Maximum Continuous Drain Current vs Case Temperature

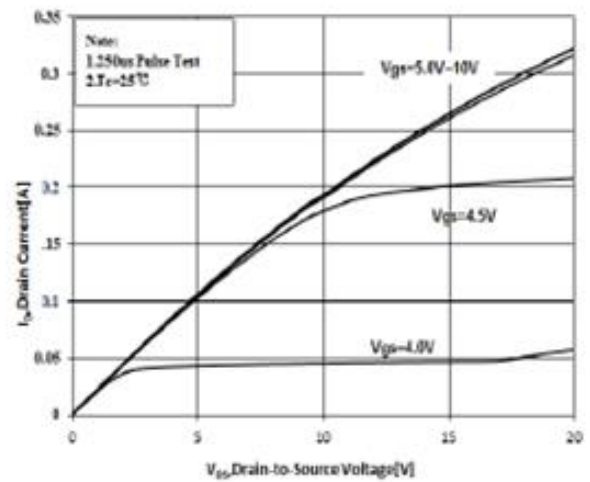


Figure 4 Typical Output Characteristics

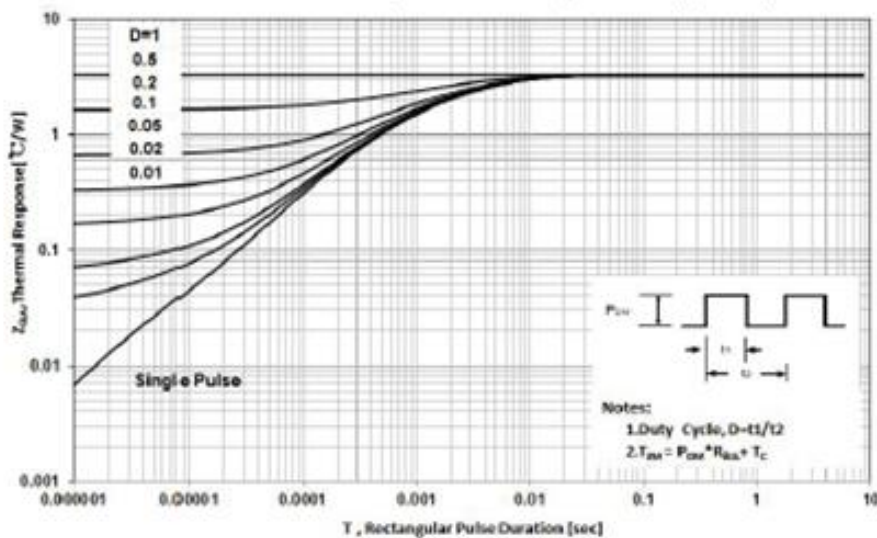


Figure 5 Maximum Effective Thermal Impedance , Junction to Case

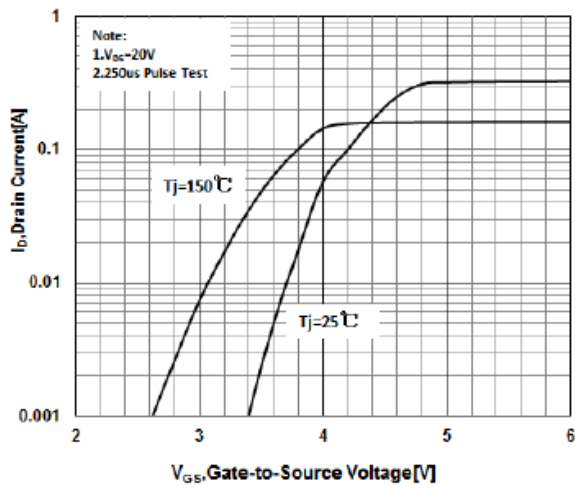


Figure 6 Typical Transfer Characteristics

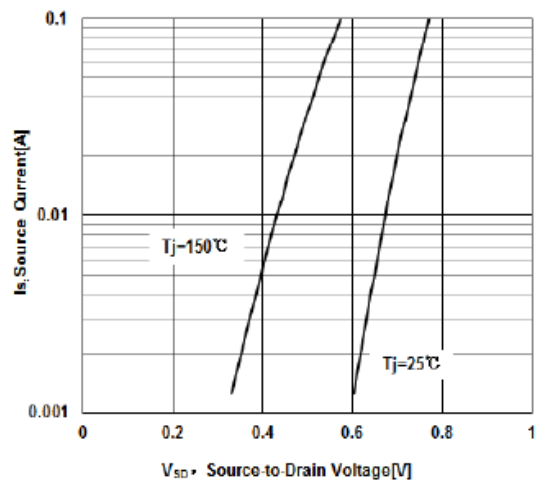


Figure 7 Typical Body Diode Transfer Characteristics

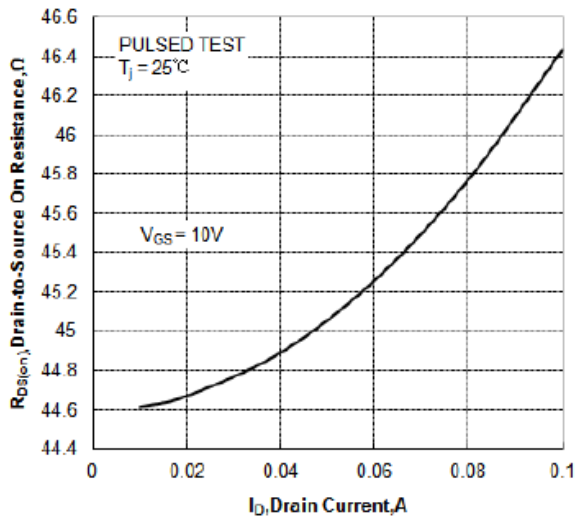


Figure 8 Typical Drain to Source ON Resistance vs Drain Current

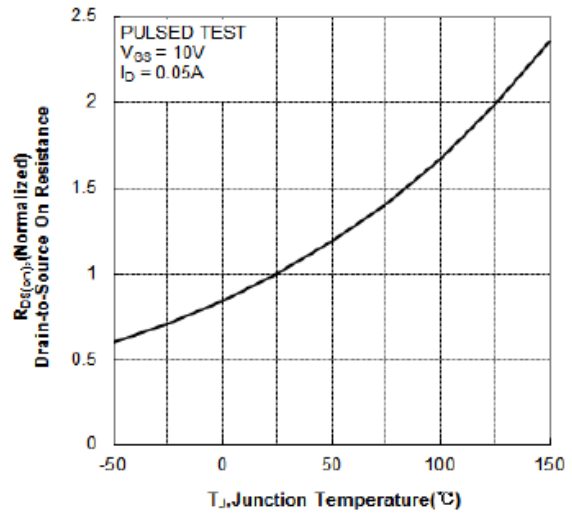


Figure 9 Typical Drain to Source on Resistance vs Junction Temperature

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