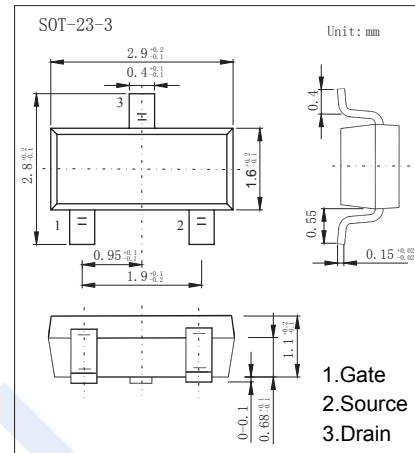
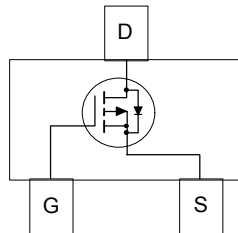


P-Channel MOSFET

NDS352AP (KDS352AP)

■ Features

- $V_{DS}(V) = -30V$
- $I_D = -0.9 A$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 0.3 \Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 0.5 \Omega$ ($V_{GS} = -4.5V$)



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	-0.9	A
Pulsed Drain Current	I_{DM}	-10	
Power Dissipation	P_D	(Note.1) 0.5	W
		(Note.2) 0.46	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	250	$^\circ C/W$
Thermal Resistance.Junction- to-Case	R_{thJC}	75	
Junction Temperature	T_J	150	$^\circ C$
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: $250^\circ C/W$ when mounted on a 0.02 in^2 pad of 2oz copper.

Note.2: $270^\circ C/W$ when mounted on a 0.001 in^2 pad of 2oz copper.

P-Channel MOSFET

NDS352AP (KDS352AP)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
		V _{DS} =-24V, V _{GS} =0V, T _J =125°C			-10	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-0.8	-1.7	-2.5	V
		V _{DS} =V _{GS} I _D =-250 μA, T _J =125°C	-0.5	-1.4	-2.2	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-0.9A		450	500	mΩ
		V _{GS} =-4.5V, I _D =-0.9A T _J =125°C		650	700	
		V _{GS} =-10V, I _D =-1A		250	300	
On state drain current	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} =-5V	-2			A
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-0.9A		1.9		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		135		pF
Output Capacitance	C _{oss}			88		
Reverse Transfer Capacitance	C _{rss}			40		
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-6V, I _D =-0.9A (Note.1)		2	3	nC
Gate Source Charge	Q _{gs}			0.5		
Gate Drain Charge	Q _{gd}			1		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-1A, R _G =6Ω (Note.1)		5	10	ns
Turn-On Rise Time	t _r			17	30	
Turn-Off DelayTime	t _{d(off)}			35	70	
Turn-Off Fall Time	t _f		30	60		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-10V, V _{DS} =-10V, I _D =-1A, R _G =50Ω (Note.1)		8	15	
Turn-On Rise Time	t _r			16	30	
Turn-Off DelayTime	t _{d(off)}			35	90	
Turn-Off Fall Time	t _f		30	90		
Maximum Body-Diode Continuous Current	I _S				-0.42	A
Pulsed Drain-Source Diode Forward Current	I _{SM}				-10	
Diode Forward Voltage	V _{SD}	I _S =-0.42A, V _{GS} =0V (Note.1)		-0.8	-1	V

■ Marking

Marking	352A
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P-Channel MOSFET NDS352AP (KDS352AP)

■ Typical Characteristics

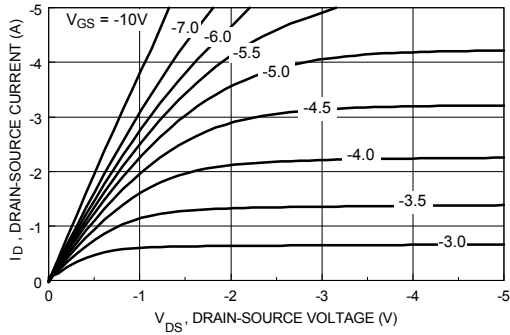


Figure 1. On-Region Characteristics.

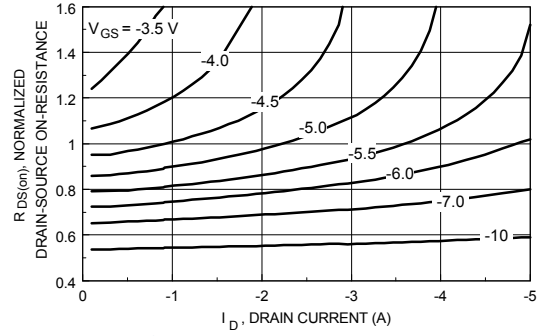


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

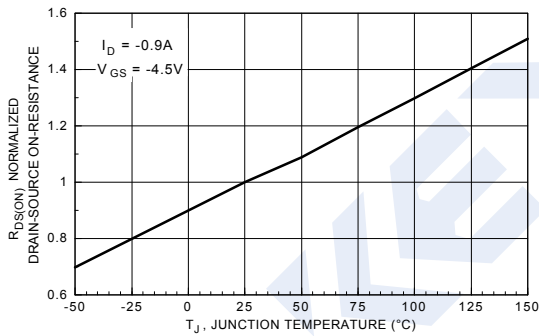


Figure 3. On-Resistance Variation with Temperature.

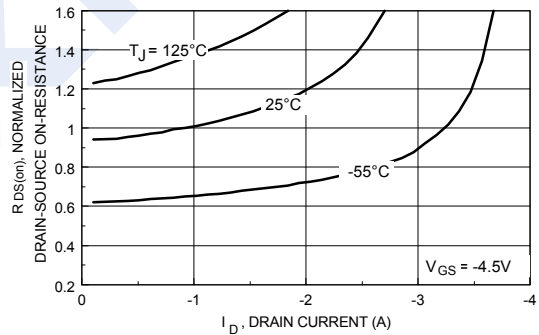


Figure 4. On-Resistance Variation with Drain Current and Temperature.

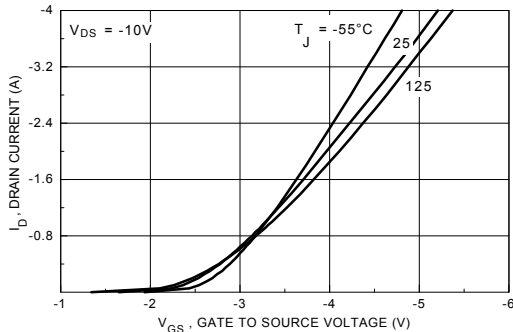


Figure 5. Transfer Characteristics.

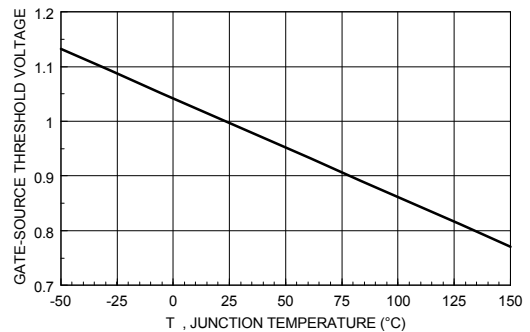


Figure 6. Gate Threshold Variation with Temperature.

P-Channel MOSFET NDS352AP (KDS352AP)

■ Typical Characteristics

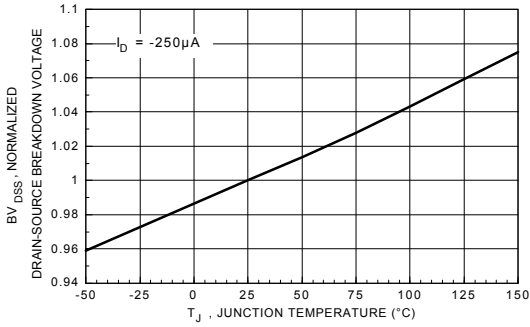


Figure 7. Breakdown Voltage Variation with Temperature.

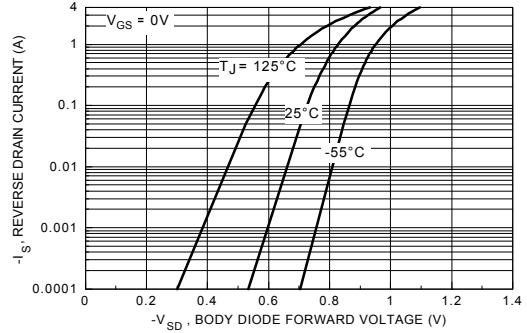


Figure 8. Body Diode Forward Voltage Variation with Source Current and Temperature.

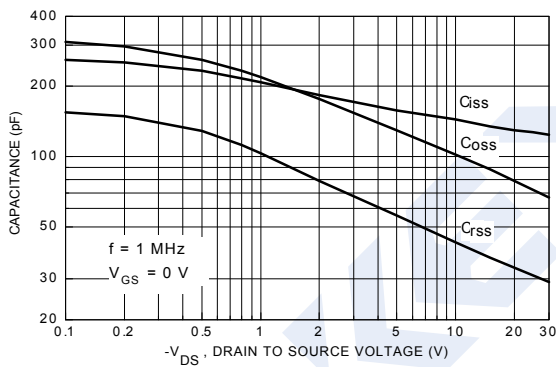


Figure 9. Capacitance Characteristics.

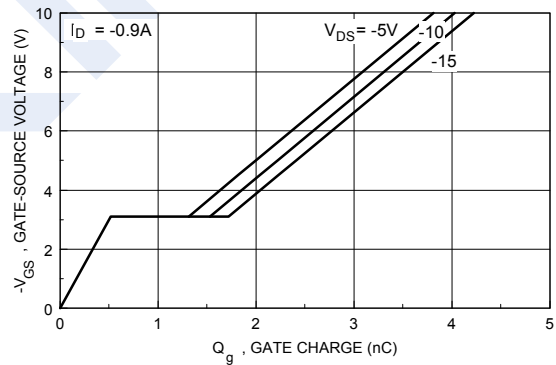


Figure 10. Gate Charge Characteristics.

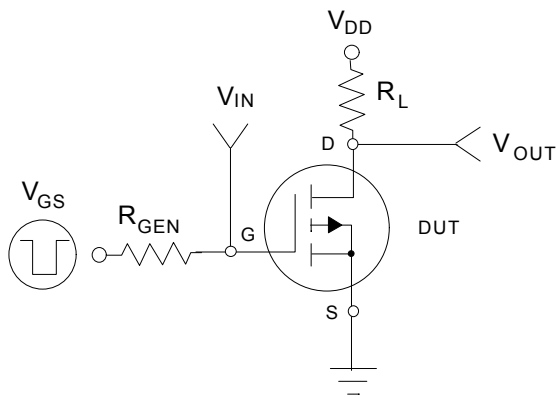


Figure 11. Switching Test Circuit.

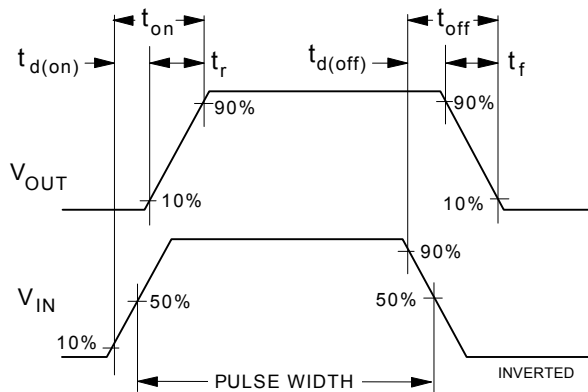


Figure 12. Switching Waveforms.

P-Channel MOSFET NDS352AP (KDS352AP)

■ Typical Characteristics

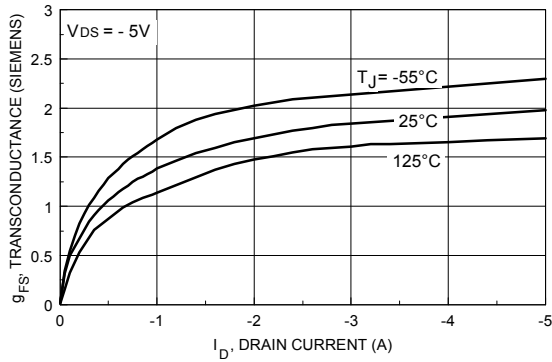


Figure 13. Transconductance Variation with Drain Current and Temperature.

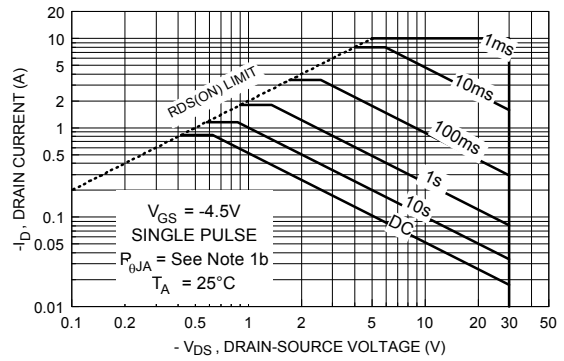


Figure 14. Maximum Safe Operating Area.

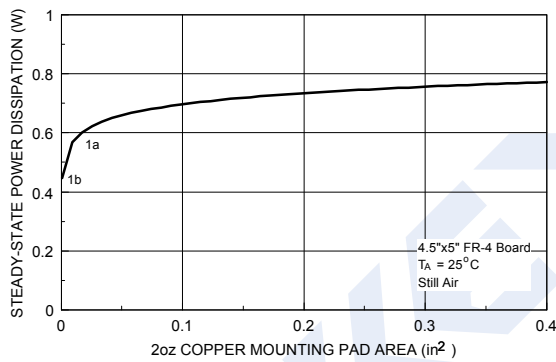


Figure 15. SuperSOT™ - 3 Maximum Steady-State Power Dissipation versus Copper Mounting Pad Area.

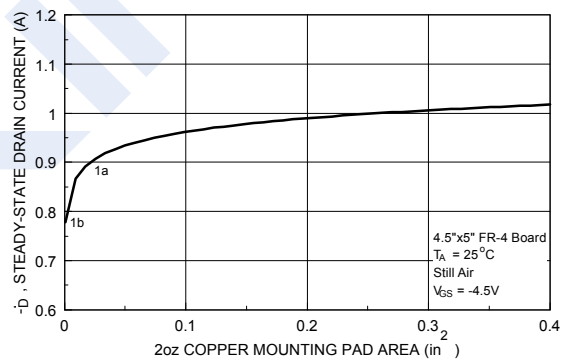


Figure 16. Maximum Steady-State Drain Current versus Copper Mounting Pad Area.

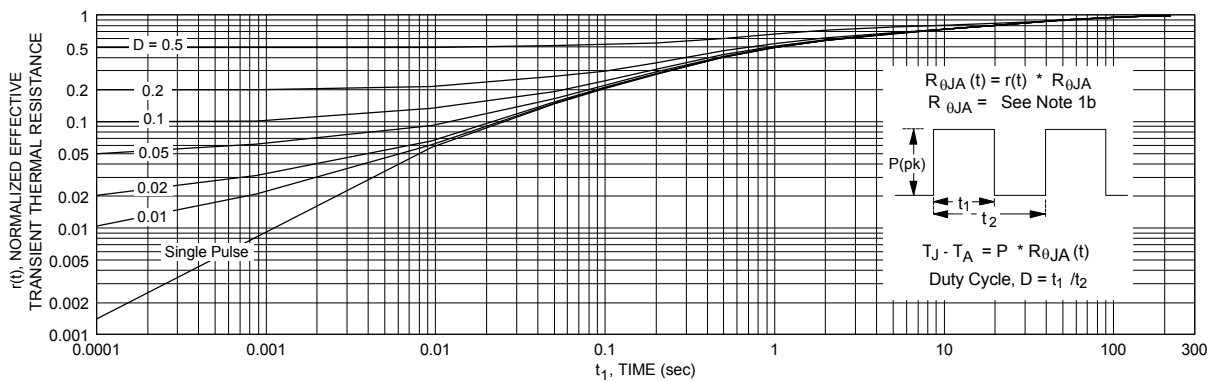


Figure 17. Transient Thermal Response Curve.

Note : Characterization performed using the conditions described in note 1b. Transient thermal response will change depending on the circuit board design.