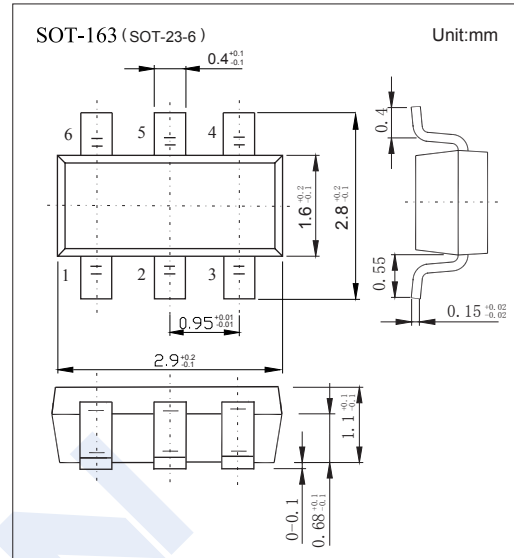
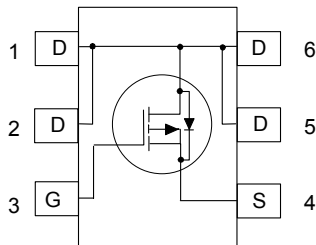


P-Channel MOSFET

FDC642P (KDC642P)

■ Features

- $V_{DS} (V) \approx -20V$
- $I_D \approx -4 A$
- $R_{DS(ON)} < 65m\Omega$ ($V_{GS} \approx -4.5V$)
- $R_{DS(ON)} < 100m\Omega$ ($V_{GS} \approx -2.5V$)



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current	I_D	-4	A
Pulsed Drain Current	I_{DM}	-20	
Power Dissipation (Note.1) (Note.2)	P_D	1.6	W
		0.8	
Thermal Resistance.Junction- to-Ambient	$R_{\theta JA}$	78	$^\circ C/W$
Thermal Resistance.Junction- to-Case	$R_{\theta JC}$	30	
Junction Temperature	T_J	150	$^\circ C$
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Note.1. 78 $^\circ C/W$ when mounted on a 1.0 in² pad of 2 oz. copper.

Note.2. 156 $^\circ C/W$ when mounted on a minimum pad of 2 oz. copper.

P-Channel MOSFET

FDC642P (KDC642P)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250μA, V _{GS} =0V	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250 μ A	-0.4		-1.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-4A			65	mΩ
		V _{GS} =-4.5V, I _D =-4A, T _J = 125°C			105	
		V _{GS} =-2.5V, I _D =-1A			100	
On state drain current	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} =-5V	-10			A
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-4A		9		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-10V, f=1MHz		640		pF
Output Capacitance	C _{oss}			180		
Reverse Transfer Capacitance	C _{rss}			90		
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-4A		7.2	10	nC
Gate Source Charge	Q _{gs}			1.7		
Gate Drain Charge	Q _{gd}			1.6		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-1A, R _G =6 Ω		11	20	ns
Turn-On Rise Time	t _r			19	30	
Turn-Off DelayTime	t _{d(off)}			26	42	
Turn-Off Fall Time	t _f			35	55	
Maximum Body-Diode Continuous Current	I _S				-1.3	A
Diode Forward Voltage	V _{SD}	I _S =-1.3A, V _{GS} =0V			-1.2	V

■ Marking

Marking	.642
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P-Channel MOSFET

FDC642P (KDC642P)

■ Typical Characteristics

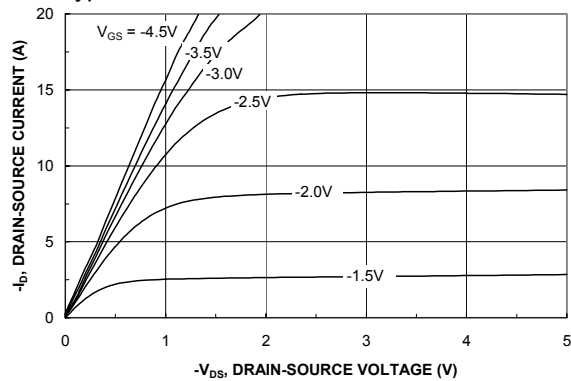


Figure 1. On-Region Characteristics.

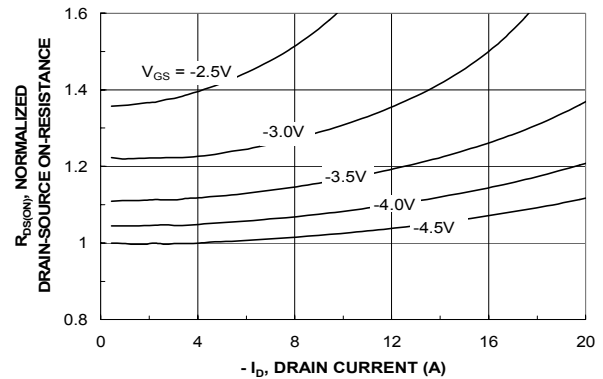


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

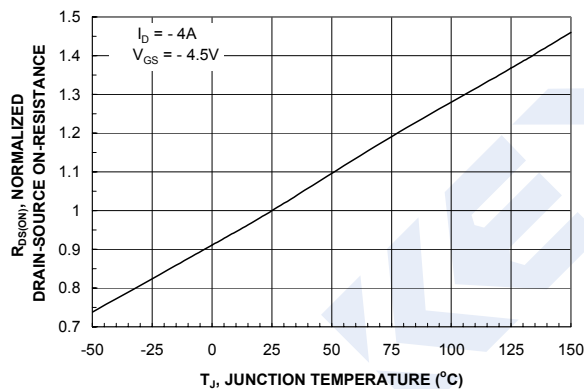


Figure 3. On-Resistance Variation with Temperature.

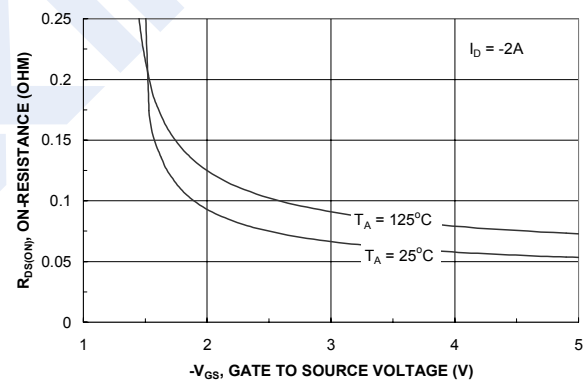


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

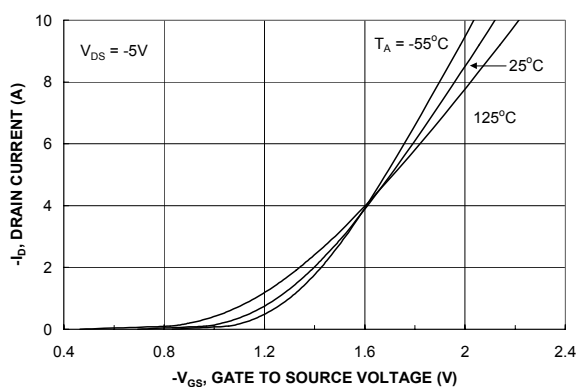


Figure 5. Transfer Characteristics.

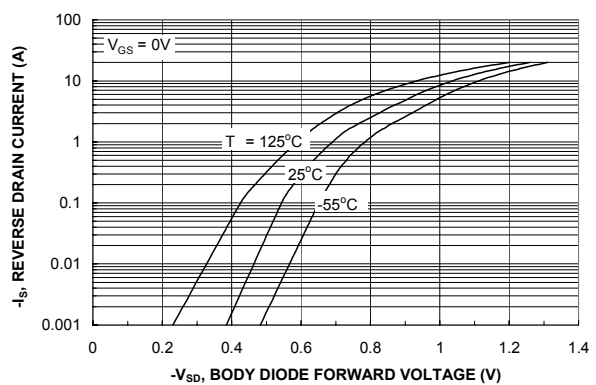


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

P-Channel MOSFET

FDC642P (KDC642P)

■ Typical Characteristics

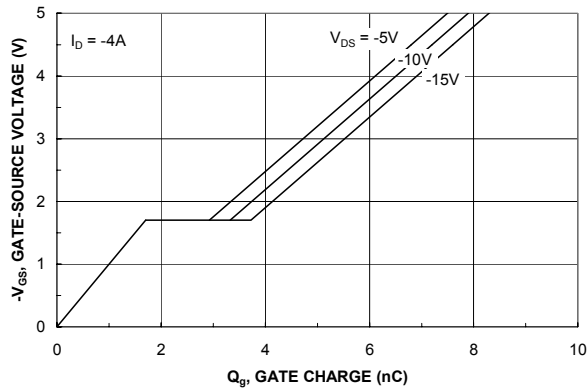


Figure 7. Gate-Charge Characteristics

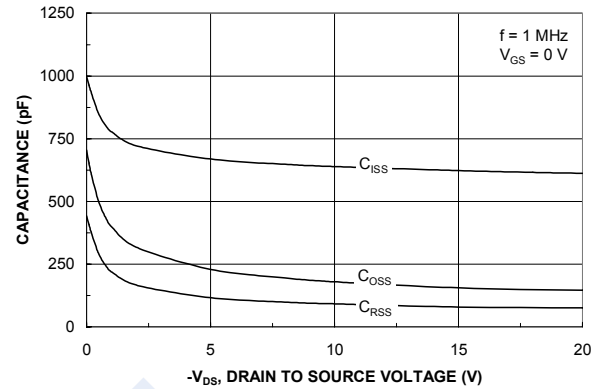


Figure 8. Capacitance Characteristics

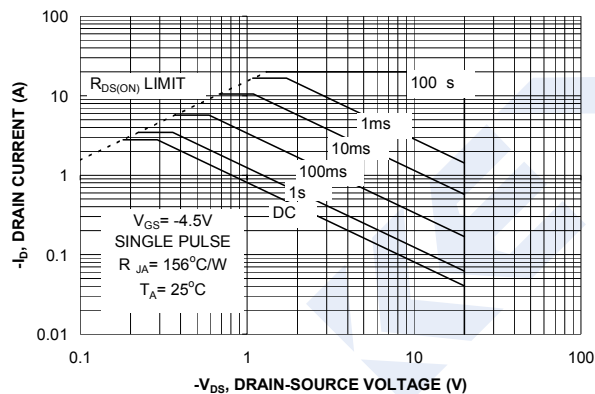


Figure 9. Maximum Safe Operating Area

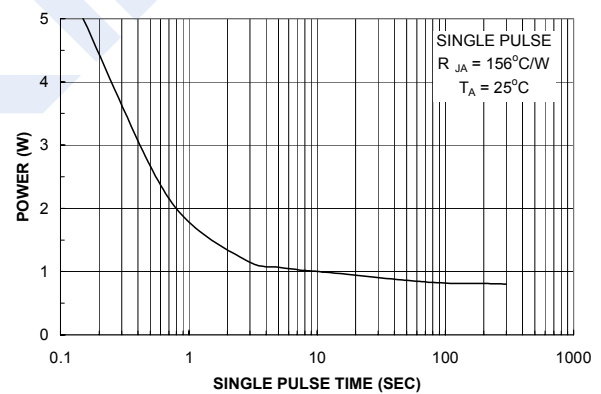


Figure 10. Single Pulse Maximum Power Dissipation

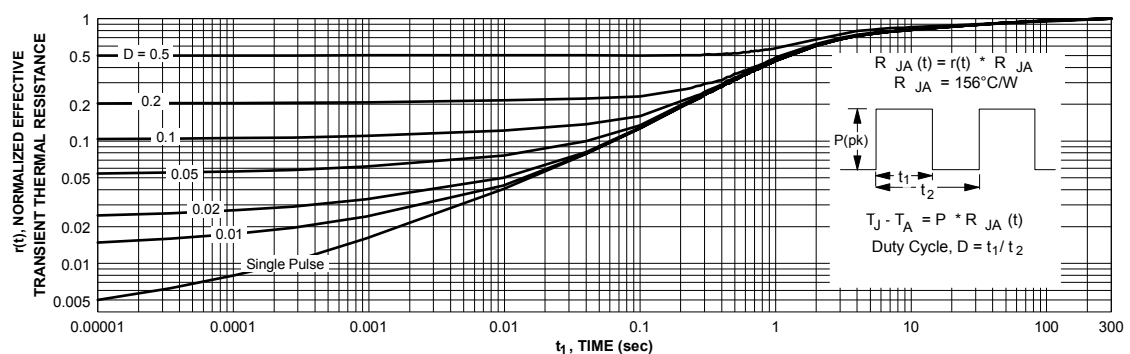


Figure 11. Transient Thermal Response Curve.

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