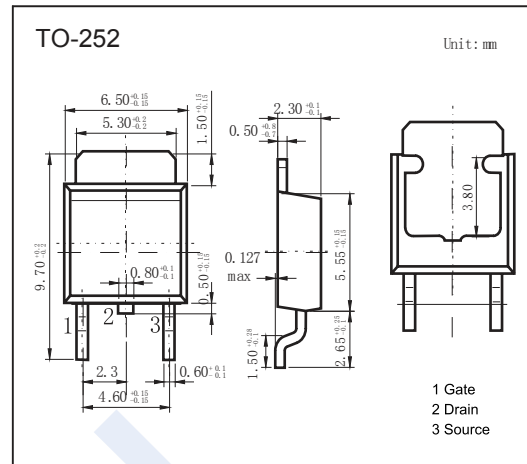
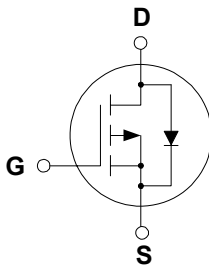


P-Channel MOSFET

FQD12P10 (KQD12P10)

Features

- $V_{DS} (V) \approx -100V$
- $I_D \approx -9.4 A$ ($V_{GS} \approx -10V$)
- $R_{DS(ON)} < 290m\Omega$ ($V_{GS} \approx -10V$)
- Low gate charge
- Low C_{rss}
- Fast switching



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	$T_c = 25^\circ C$	-9.4
		$T_c = 100^\circ C$	-6
Pulsed Drain Current	I_{DM}	-37.6	A
Avalanche Current	I_{AR}	-9.4	
Single Pulsed Avalanche Energy (Note.1)	E_{AS}	370	mJ
Repetitive Avalanche Energy	E_{AR}	5	
Peak Diode Recovery dv/dt (Note.2)	dv/dt	-6	V/ns
Power Dissipation	P_D	$T_a = 25^\circ C$	2.5
		$T_c = 25^\circ C$	50
Power Dissipation - Derate above $25^\circ C$		0.4	W/ $^\circ C$
Thermal Resistance, Junction- to-Ambient	R_{thJA}	(Note.3)	50
			110
Thermal Resistance, Junction-to-Case	R_{thJC}	2.5	$^\circ C/W$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	300	$^\circ C$
Junction Temperature	T_J	150	
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: $L = 6.3mH$, $I_{AS} = -9.4A$, $V_{DD} = -25V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$

Note.2: $I_{SD} \leq -11.5A$, $di/dt \leq 300A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$

Note.3: When mounted on the minimum pad size recommended (PCB Mount)

P-Channel MOSFET

FQD12P10 (KQD12P10)

■ 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	-100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V			-1	uA
		V _{DS} =-80V, V _{GS} =0V, T _c =125°C			-10	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-2		-4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-4.7A			29	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-40V, I _D =-4.7A (Note.1)		6.3		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-25V, f=1MHz (Note.1)			800	pF
Output Capacitance	C _{oss}				290	
Reverse Transfer Capacitance	C _{rss}				85	
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-80V, I _D =-11.5A (Note.1)		21	27	nC
Gate Source Charge	Q _{gs}			4.6		
Gate Drain Charge	Q _{gd}			11.5		
Turn-On DelayTime	t _{d(on)}	V _{DD} = -50 V, I _D = -11.5 A, R _G = 25 Ω (Note.1)			40	ns
Turn-On Rise Time	t _r				330	
Turn-Off DelayTime	t _{d(off)}				80	
Turn-Off Fall Time	t _f				130	
Body Diode Reverse Recovery Time	t _{rr}	V _{GS} = 0 V, I _S = -11.5 A, dI _F / dt = 100 A/μs (Note.1)		110		nC
Body Diode Reverse Recovery Charge	Q _{rr}			470		
Maximum Body-Diode Continuous Current	I _S				-9.4	A
Pulsed Drain-Source Diode Forward Current	I _{SM}				-37.6	
Diode Forward Voltage	V _{SD}	I _S =-9.4A, V _{GS} =0V			-4	V

Note.1: Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

P-Channel MOSFET

FQD12P10 (KQD12P10)

■ Typical Characteristics

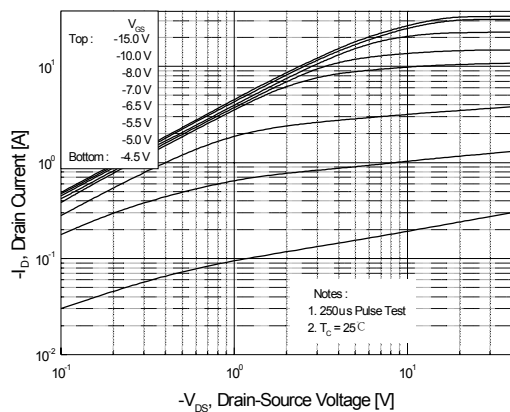


Figure 1. On-Region Characteristics

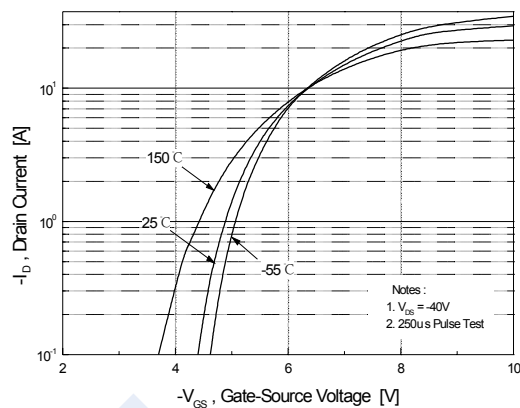


Figure 2. Transfer Characteristics

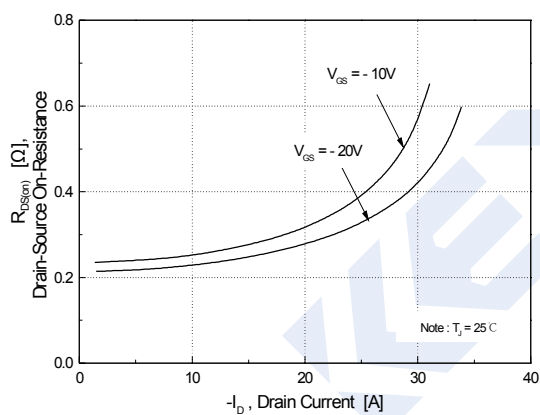


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

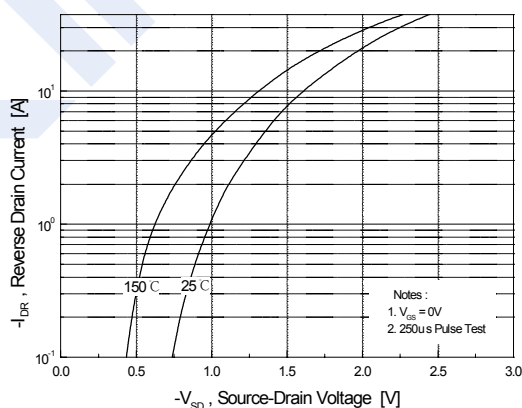


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

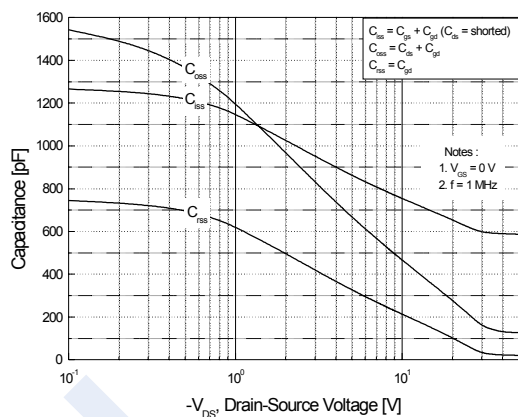


Figure 5. Capacitance Characteristics

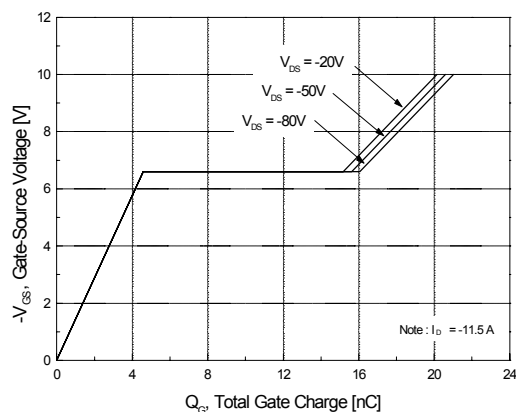


Figure 6. Gate Charge Characteristics

P-Channel MOSFET

FQD12P10 (KQD12P10)

■ Typical Characteristics

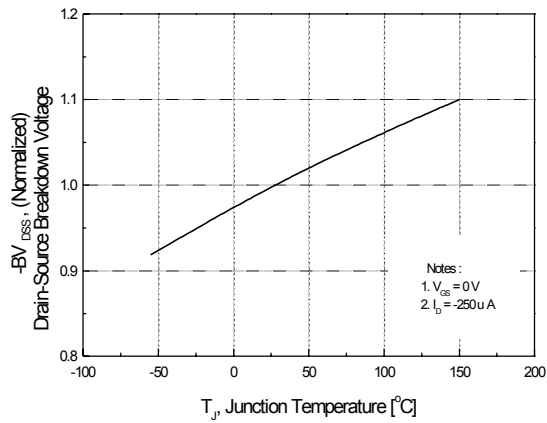


Figure 7. Breakdown Voltage Variation vs. Temperature

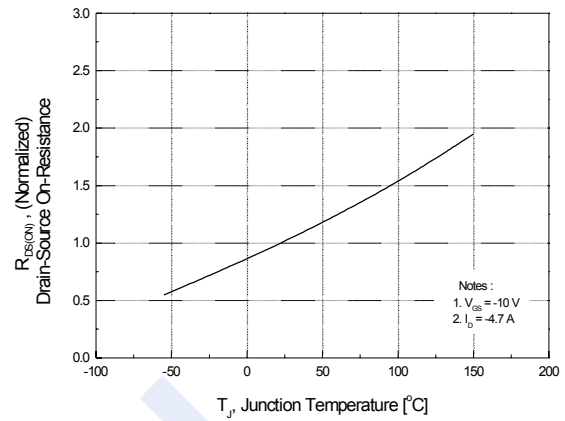


Figure 8. On-Resistance Variation vs. Temperature

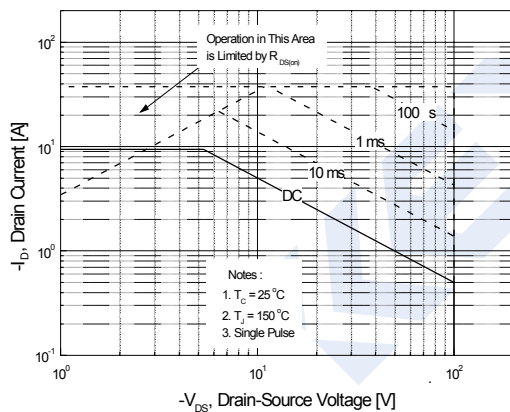


Figure 9. Maximum Safe Operating Area

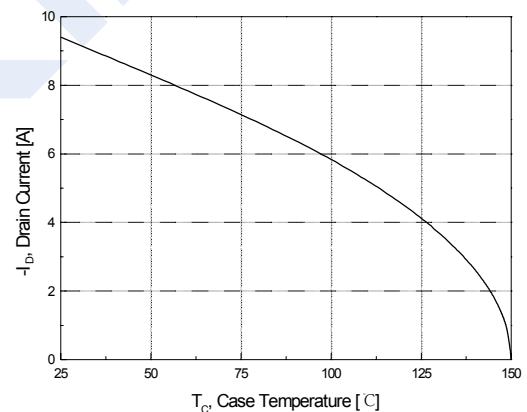


Figure 10. Maximum Drain Current vs. Case Temperature

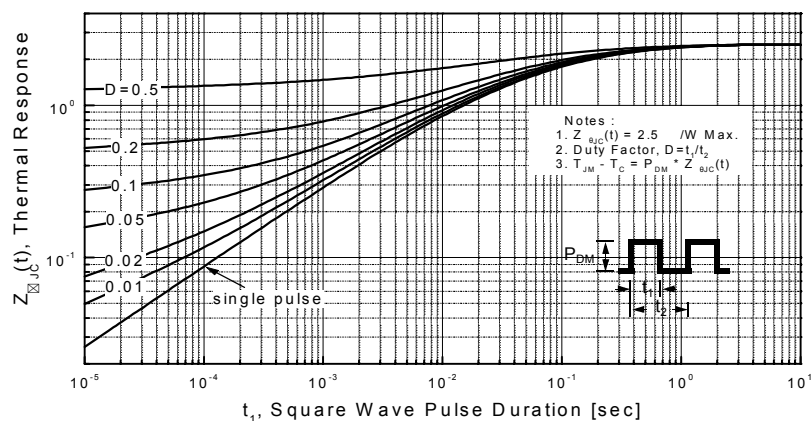


Figure 11. Transient Thermal Response Curve