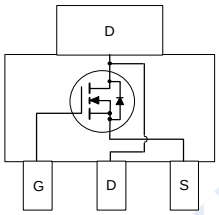
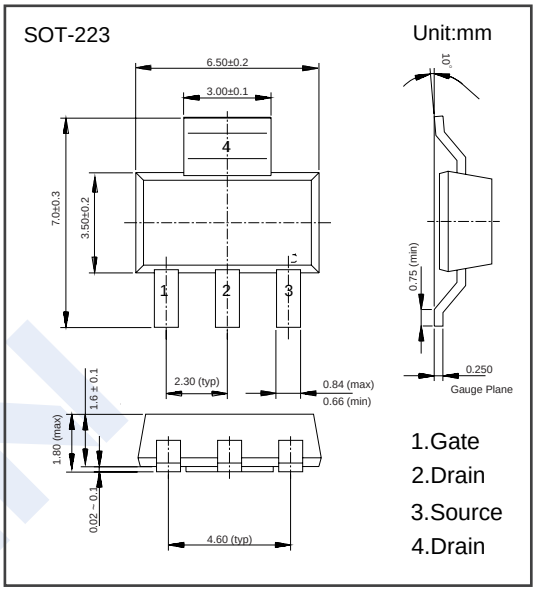
N-Channel Enhancement Mode MOSFET

KDT3055L

■ Features

- $R_{DS(ON)}$=100mΩ Max. @V_{GS}=10V
- $R_{DS(ON)}$=120mΩ Max. @V_{GS}=4.5V





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain-Current -Continuous	I_D	4	A
-Pulsed	I_{DM}	25	A
Power Dissipation @ T_A=25℃	P_D	3	W
Thermal Resistance,Junction- to-Ambient	$R_{\theta JA}$	42	℃/W
Operating Junction and Storage Temperature Range	Tj.Tstg	-65 to 150	℃

KDT3055L

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V,I_D=250uA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V			1	μA
Gate-Body Leakage	I_{GSS}	V_{GS}=20 V,V_{DS}=0V			±100	nA
Gate Threshold Voltage (NOTE 2)	$V_{GS(th)}$	V_{GS}=V_{DS},I_D=250uA	1	1.6	2	V
Drain- Source on-state Resistance (NOTE 2)	$R_{DS(ON)}$	V_{GS}=10V,I_D=4A			100	mΩ
		V_{GS}=4.5V,I_D=3.7A			120	mΩ
On-State Drain Current (NOTE 2)	$I_{D(ON)}$	V_{DS}=10V,V_{GS}=5V	10			A
Forward Transconductance (NOTE 2)	g_{FS}	V_{DS}=5V,I_D=4A		7		S
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0V,f =1.0MHZ		345		pF
Output Capacitance	C_{oss}			110		pF
Reverse Transfer Capacitance	C_{rss}			30		pF
Turn-On Delay Time	$t_{D(on)}$	V_{DD}=25V,I_D=1A,V_{GS}=10V,R_{GEN}=6Ω			20	ns
Rise Time	t_r				20	ns
Turn-Off Delay Time	$t_{D(off)}$				50	ns
Fall Time	t_f				20	ns
Total Gate Charge	Q_g	V_{DS} = 40V, I_D = 4A,V_{GS} = 10V		13	20	nC
Gate-S ource Charge	Q_{gs}			1.7		nC
Gate-Drain Charge	Q_{gd}			3.2		nC
Drain-Source Diode Forward Current (NOTE 2)	I_S				2.5	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=2.5A		0.8	1.2	V

Note: 1. Surface Mounted on FR4 Board t ≤10sec.

2. Pulse Test:Pulse Width≤300μ,Duty Cycle≤2%

■ Marking

Marking	3055L K***

KDT3055L

■ Typlacl Characteristics

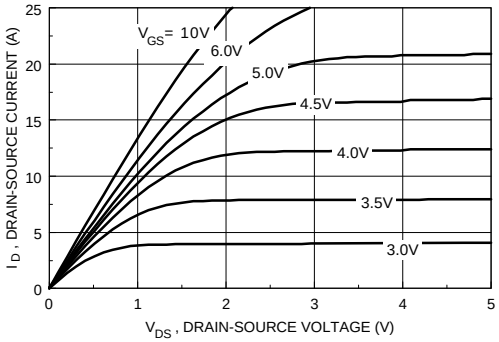


Figure 1. On-Region Characteristics.

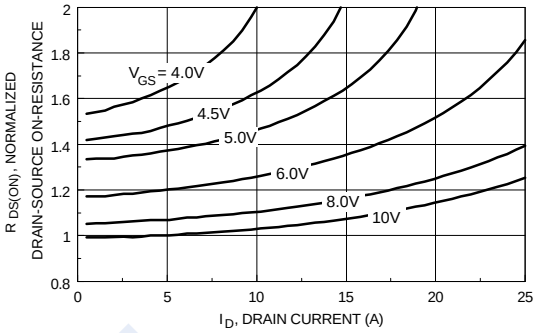


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

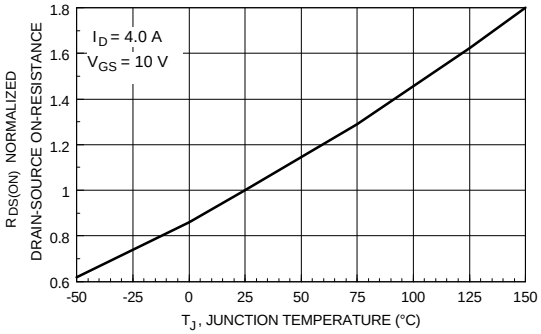


Figure 3. On-Resistance Variation with Temperature.

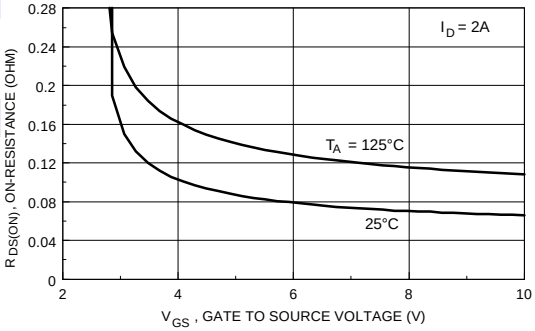


Figure 4. On-Resistance Variation with Gate-to- Source Voltage.

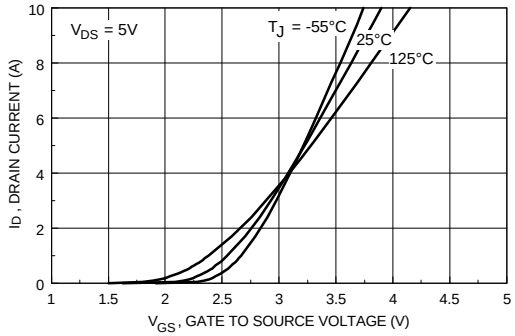


Figure 5. Transfer Characteristics.

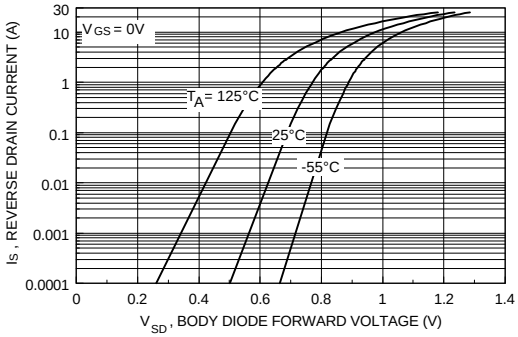


Figure 6. Body Diode Forward Voltage Variation with Current and Temperature.

KDT3055L

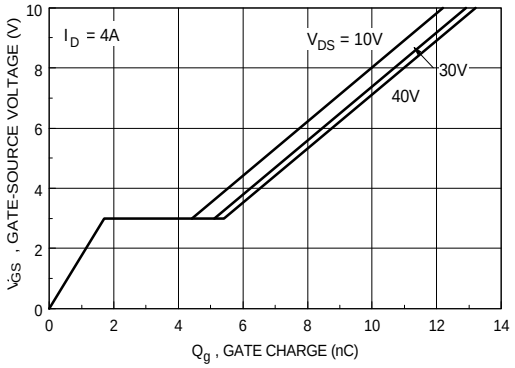


Figure 7. Gate Charge Characteristics.

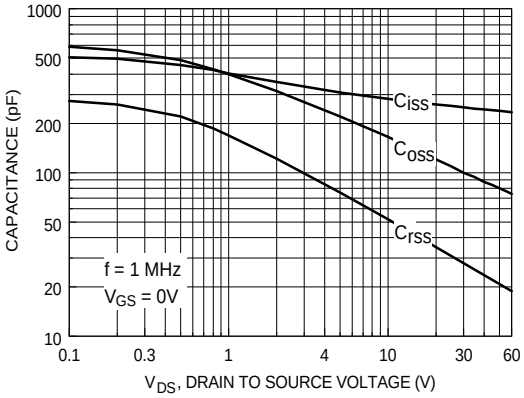


Figure 8. Capacitance Characteristics.

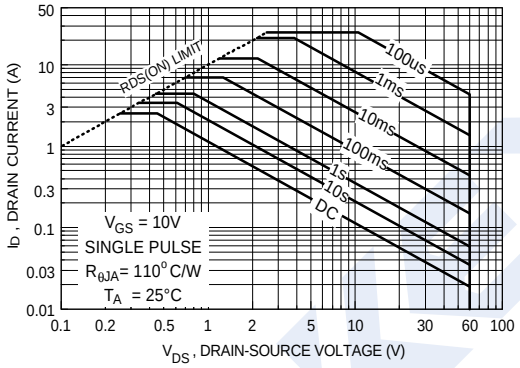


Figure 9. Maximum Safe Operating Area.

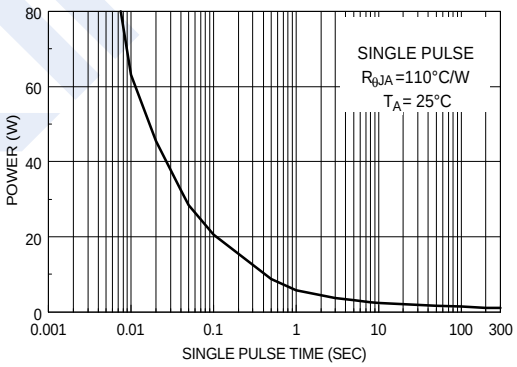


Figure 10. Single Pulse Maximum Power Dissipation.

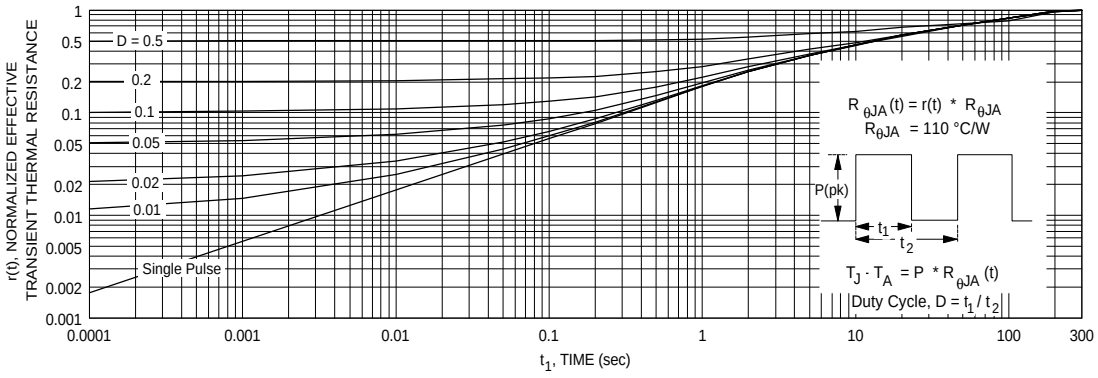


Figure 11. Transient Thermal Response Curve.

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