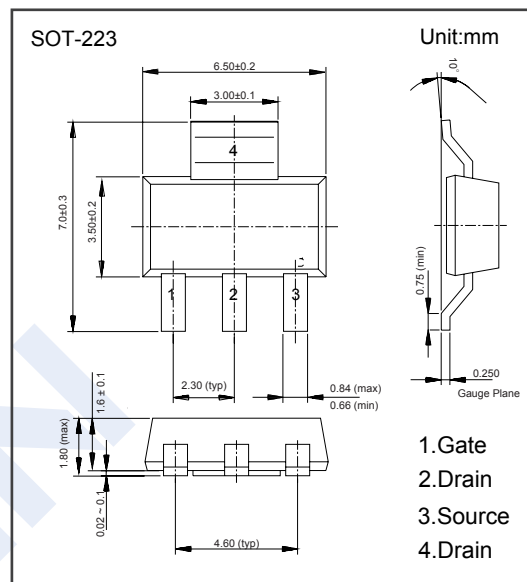
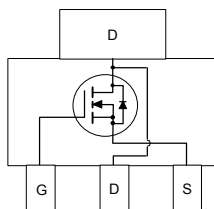


N-Channel Enhancement Mode MOSFET

KDT3055L

■ Features

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



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

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 @ $T_A=25^\circ C$	P_D	3	W	
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	42	$^\circ C/W$	
Operating Junction and Storage Temperature Range	$T_{j.Tstg}$	-65 to 150	$^\circ C$	

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■ Electrical Characteristics Ta = 25°C

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} =20V, 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-Source 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 ≤ 300 μ, Duty Cycle ≤ 2%

■ Marking

Marking	3055L
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KDT3055L

■ Typical Characteristics

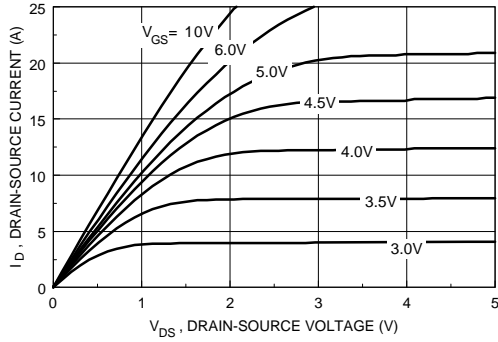


Figure 1. On-Region Characteristics.

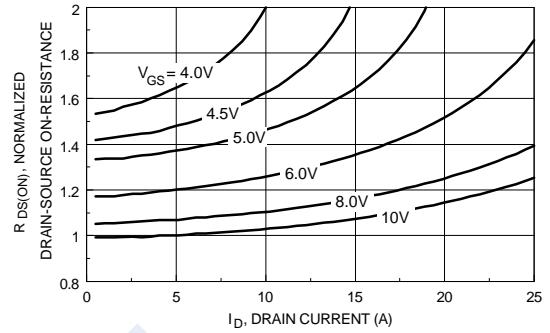


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

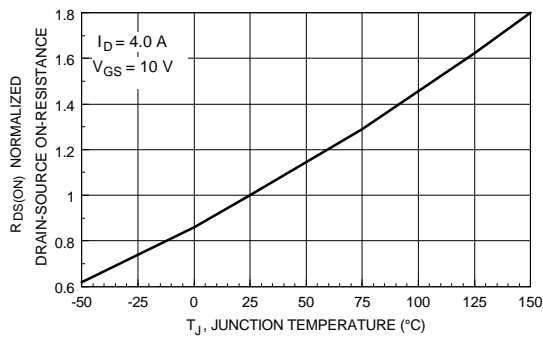


Figure 3. On-Resistance Variation with Temperature.

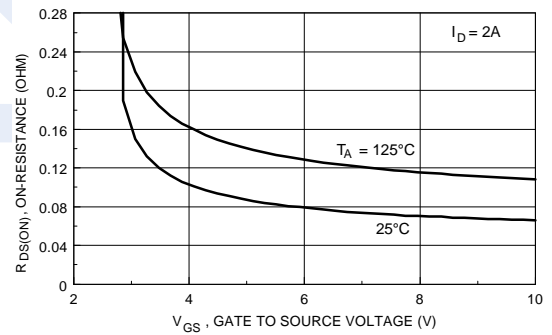


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

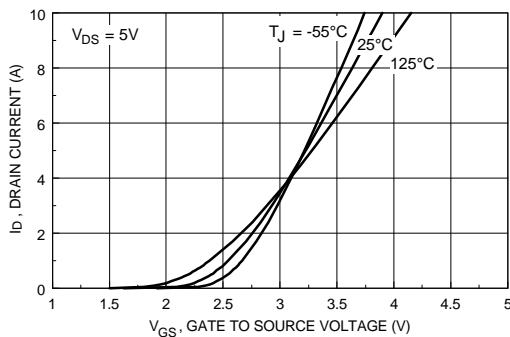


Figure 5. Transfer Characteristics.

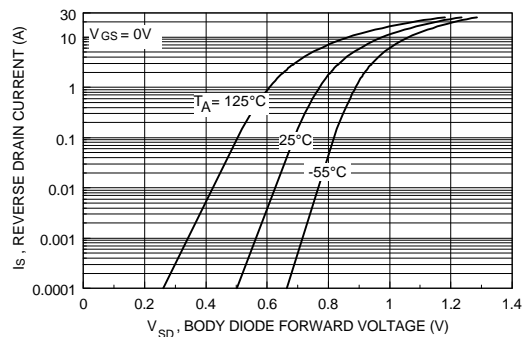


Figure 6. Body Diode Forward Voltage Variation with Current and Temperature.

KDT3055L

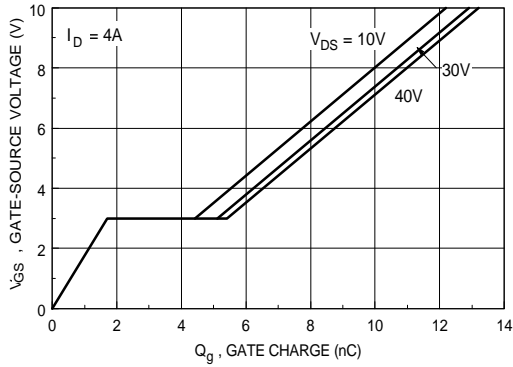


Figure 7. Gate Charge Characteristics.

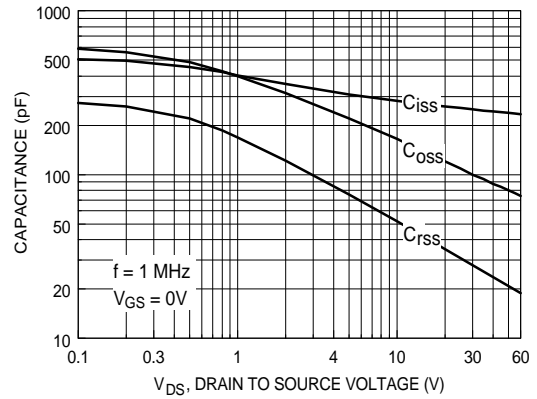


Figure 8. Capacitance Characteristics.

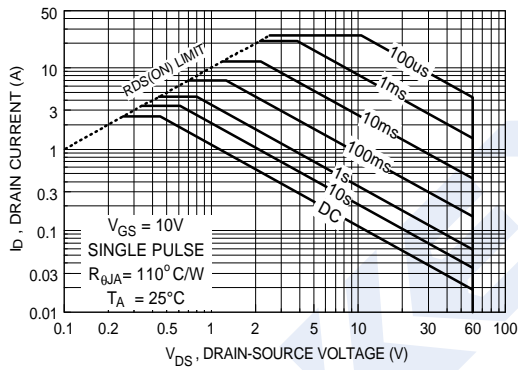


Figure 9. Maximum Safe Operating Area.

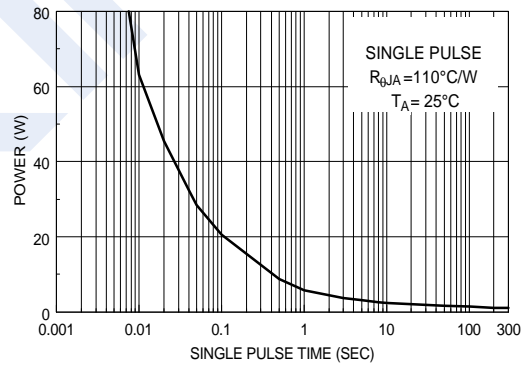


Figure 10. Single Pulse Maximum Power Dissipation.

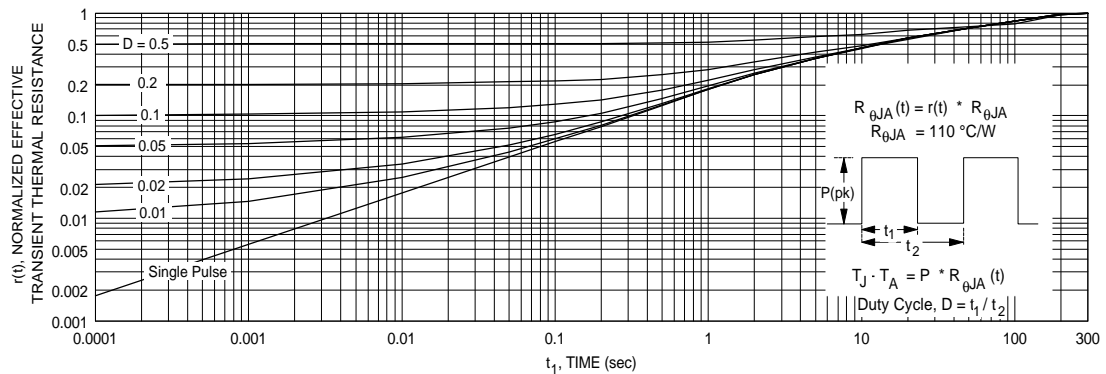


Figure 11. Transient Thermal Response Curve.

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