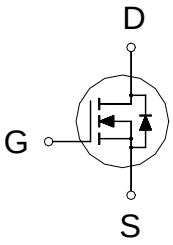
NIKO-SEM

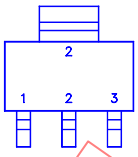
N-Channel Logic Level Enhancement Mode Field Effect Transistor

P3055LLG
SOT-223
Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25	90mΩ	6A





1. GATE
2. DRAIN
3. SOURCE

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	6	A
	T_C = 100 °C		3.6	
Pulsed Drain Current[1]		I_{DM}	22	
Avalanche Energy	L = 0.1mH	E_{AS}	60	mJ
Repetitive Avalanche Energy[2]	L = 0.05mH	E_{AR}	3	
Power Dissipation	T_C = 25 °C	P_D	3	W
	T_C = 100 °C		1.5	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C
Lead Temperature ($^1/_{16}$" from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		12	°C / W
Junction-to-Ambient	$R_{\theta JA}$		42	

[1]Pulse width limited by maximum junction temperature.
[2]Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_C = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	25			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.8	1.2	2.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±250	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			25	μA
		V_{DS} = 20V, V_{GS} = 0V, T_J = 125 °C			250	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	6			A

Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 5V, I_D = 3A		70	120	mΩ
		V_{GS} = 10V, I_D = 6A		50	90	
Forward Transconductance[1]	g_{fs}	V_{DS} = 15V, I_D = 6A		16		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		450		pF
Output Capacitance	C_{oss}			200		
Reverse Transfer Capacitance	C_{rss}			60		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 3A		15		nC
Gate-Source Charge[2]	Q_{gs}			2.0		
Gate-Drain Charge[2]	Q_{gd}			7.0		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V, R_L = 1Ω, I_D ≅ 10A, V_{GS} = 10V, R_{GS} = 2.5Ω		6.0		nS
Rise Time[2]	t_r			6.0		
Turn-Off Delay Time[2]	$t_{d(off)}$			20		
Fall Time[2]	t_f			5.0		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				6	A
Pulsed Current[3]	I_{SM}				35	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.5	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A / μS		30		nS
Peak Reverse Recovery Current	$I_{RM(REC)}$			15		A
Reverse Recovery Charge	Q_{rr}			0.043		μC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH "P3055LLG", DATE CODE or LOT #

Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.

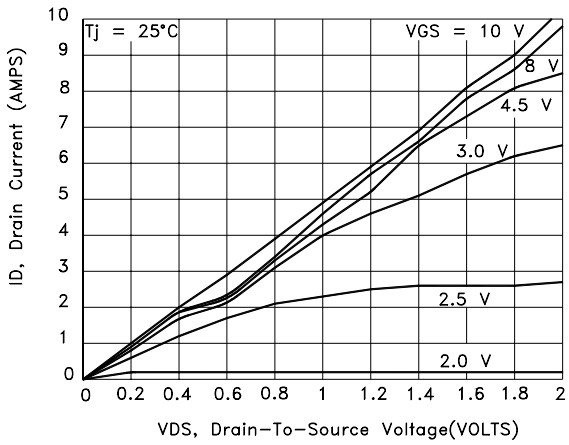


Fig.1 On-Resistance Variation with Temperature

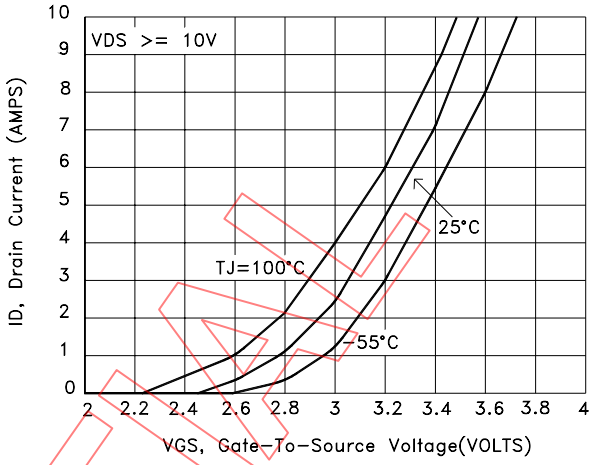


Fig.2 Transfer Characteristics

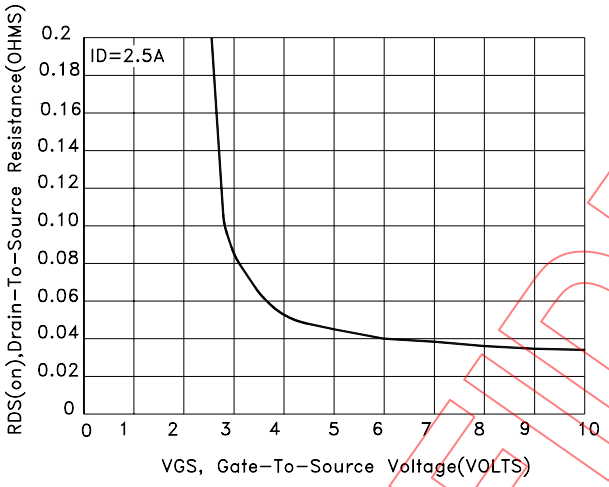


Fig.3 On-Resistance versus Gate-To-Source Voltage

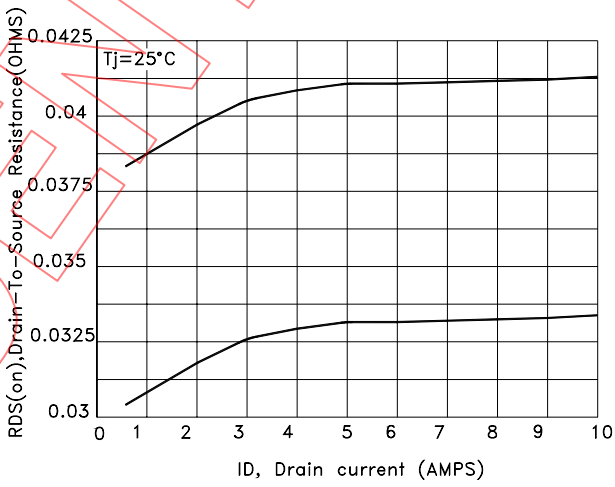


Fig.4 On-Resistance versus Drain Current and Gate Voltage

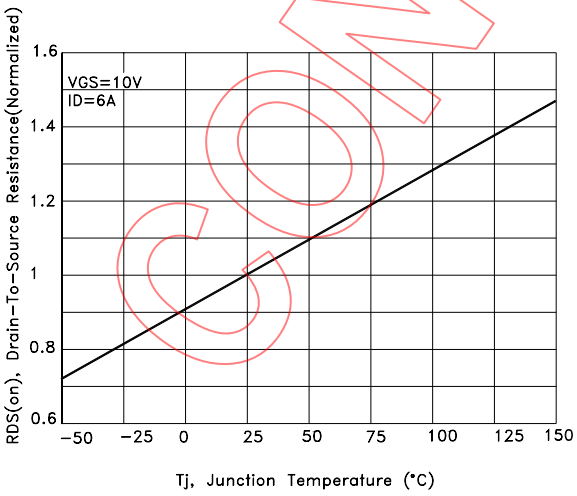


Fig.5 On-Rresistance Variation with Temperature

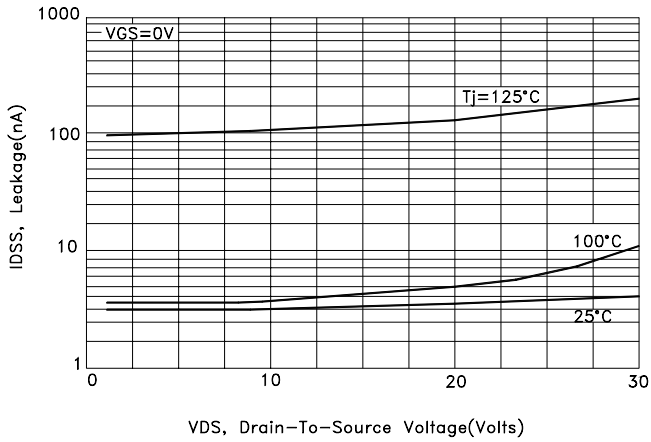


Fig.6 Drain-To-Source Leakage Current versus Voltage

SOT-223 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.67	0.7	0.73	H	3.3	3.5	3.7
B	6.7	7	7.3	I	0.63	0.65	0.67
C	2.9	3	3.1	J		0.32	0.4
D	2.27	2.3	2.33	K	0°		10°
E	4.57	4.6	4.63	L	0.03		0.1
F	1.5	1.6	1.7	M			
G	6.3	6.5	6.7	N