Ordering number : ENN7273

N-Channel Silicon MOSFET

TM3055A

Ultrahigh-Speed Switching Applications

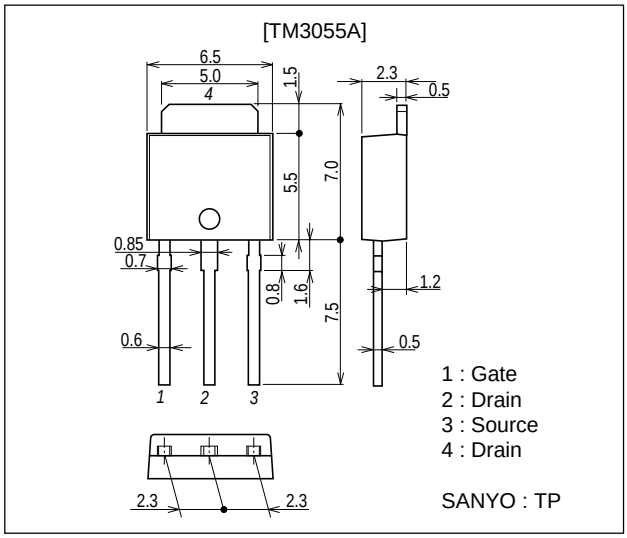
Features

- Low ON-resistance.
- 4V drive.

Package Dimensions

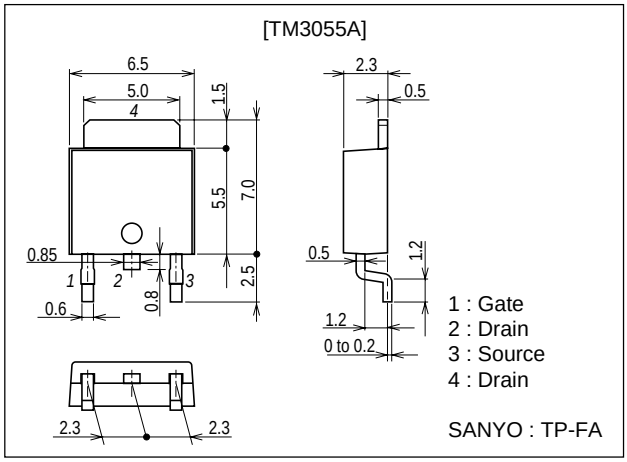
unit : mm

2083B



unit : mm

2092B



Specifications

Absolute Maximum Ratings at Ta=25°C

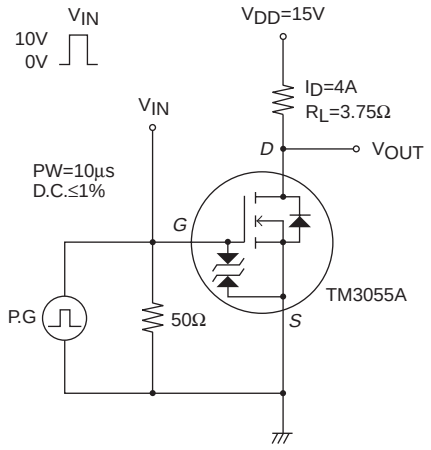
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		8	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	32	A
Allowable Power Dissipation	P_D		1	W
		Tc=25°C	10	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

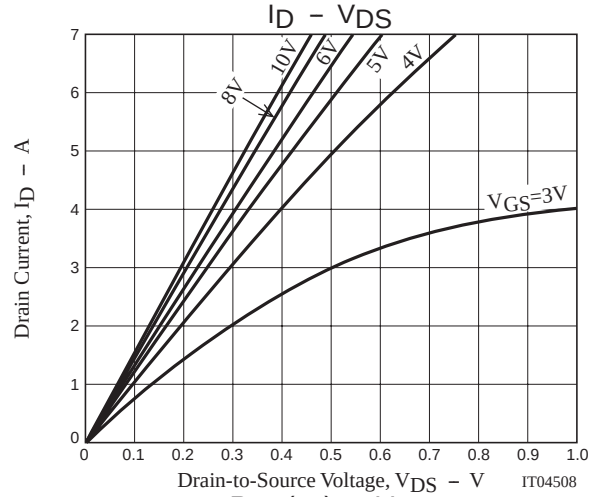
Electrical Characteristics at Ta=25°C

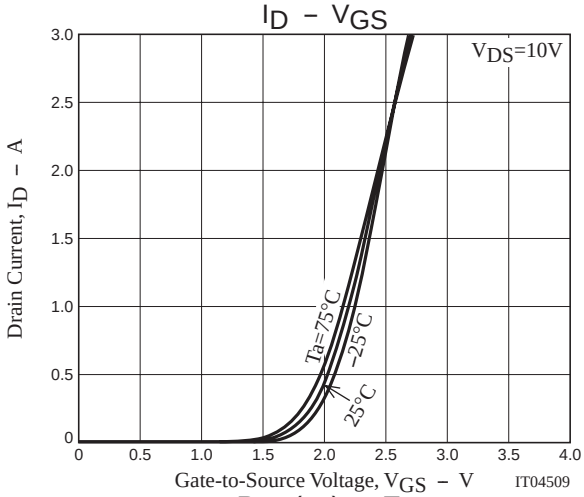
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=4A	3.2	4.5		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=4A, V_{GS}=10V		70	90	mΩ
	R_{DS}(on)2	I_D=4A, V_{GS}=4V		120	170	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		180		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		42		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		25		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		30		ns
Fall Time	t_f	See specified Test Circuit.		10		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=8A		4.9		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=8A		0.93		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=8A		0.63		nC
Diode Forward Voltage	V_{SD}	I_S=8A, V_{GS}=0		1.0	1.2	V

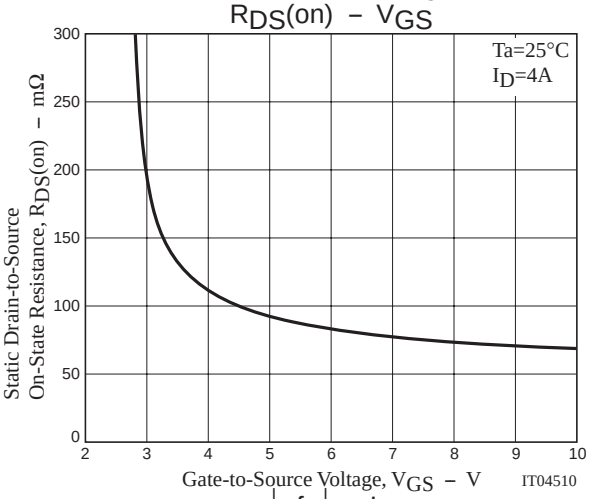
Marking [3055 / A]

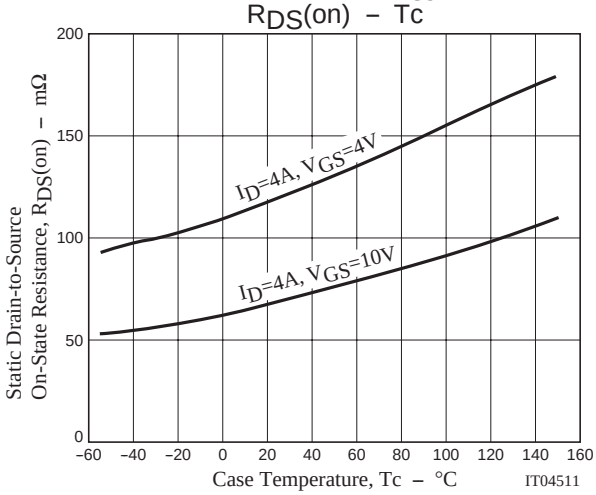
Switching Time Test Circuit

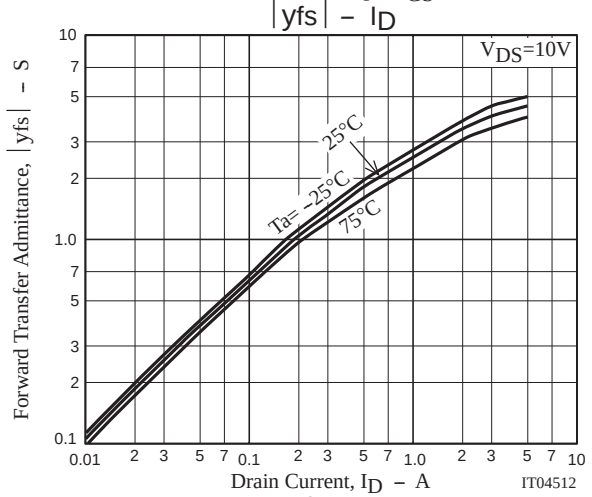


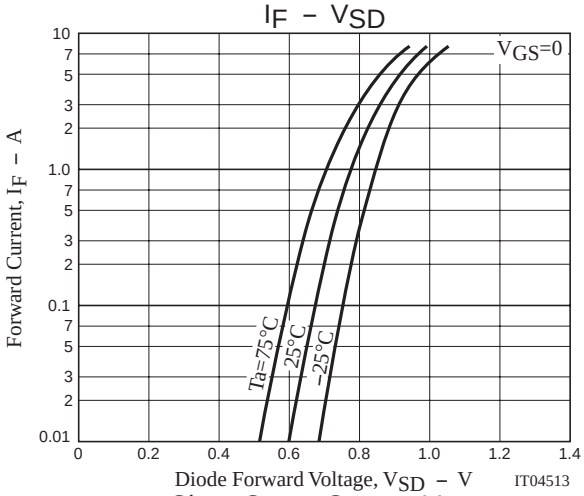

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT04508
8V
10V
6V
5V
4V
VGS=3V

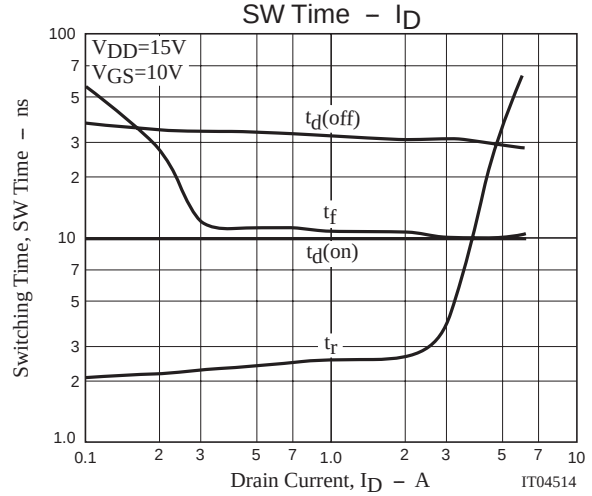

ID – VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT04509
VDS=10V
Ta=75°C
–25°C
25°C

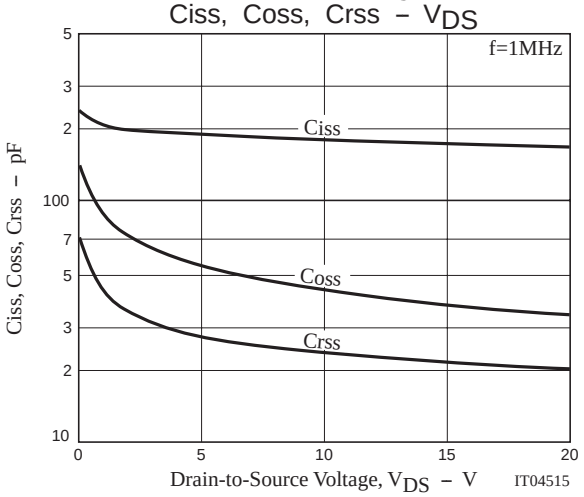

RDS(on) – VGS
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT04510
Ta=25°C
ID=4A


RDS(on) – Tc
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT04511
ID=4A, VGS=4V
ID=4A, VGS=10V


|yfs| – ID
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT04512
VDS=10V
25°C
Ta=–25°C
75°C


IF – VSD
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT04513
VGS=0
Ta=75°C
25°C
–25°C


SW Time – ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT04514
VDD=15V
VGS=10V
td(off)
tf
td(on)
tr


Ciss, Coss, Crss – VDS
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT04515
f=1MHz
Ciss
Coss
Crss