

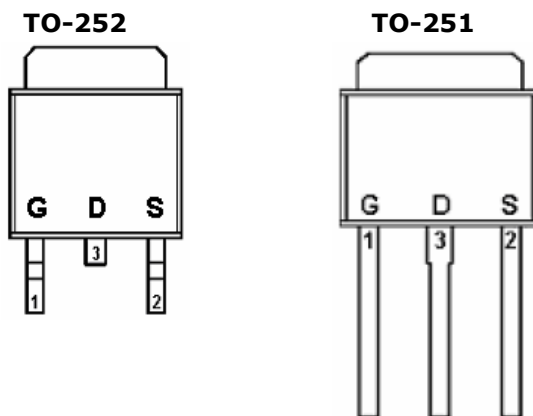
## DESCRIPTION

STP3052D is the P-Channel logic enhancement mode power field effect transistor which is produced using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application. Such as DC/DC converter and Desktop computer power management.

The package is universally preferred for commercial industrial surface mount applications.

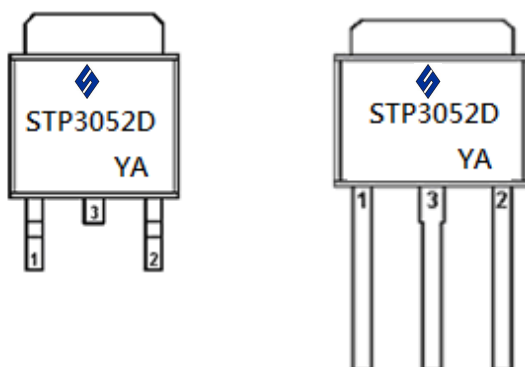
## PIN CONFIGURATION (D-PAK)



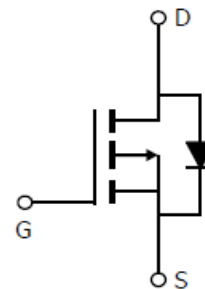
## FEATURE

- -30V/-25.0A,  $R_{DS(ON)} = 45m\Omega$  (Typ.) @ $V_{GS} = -10V$
- -30V/-16.0A,  $R_{DS(ON)} = 78m\Omega$  @ $V_{GS} = -5.0V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TO-252, TO-251 package design

## PART MARKING



**Y: Year Code A: Process Code**





-25.0A

**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C Unless otherwise noted )

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	VDSS	-30	V
Gate-Source Voltage	VGSS	±20	V
Continuous Drain Current (TJ=150°C)	ID	TA=25°C -25.0	A
		TA=70°C -18.0	
Pulsed Drain Current	IDM	-100	A
Continuous Source Current (Diode Conduction)	IS	-15	A
Power Dissipation	PD	TA=25°C 40	W
		TA=70°C 20	
Operation Junction Temperature	TJ	150	°C
Storage Temperature Range	TSTG	-55/150	°C
Thermal Resistance-Junction to Ambient	RθJA	105	°C/W

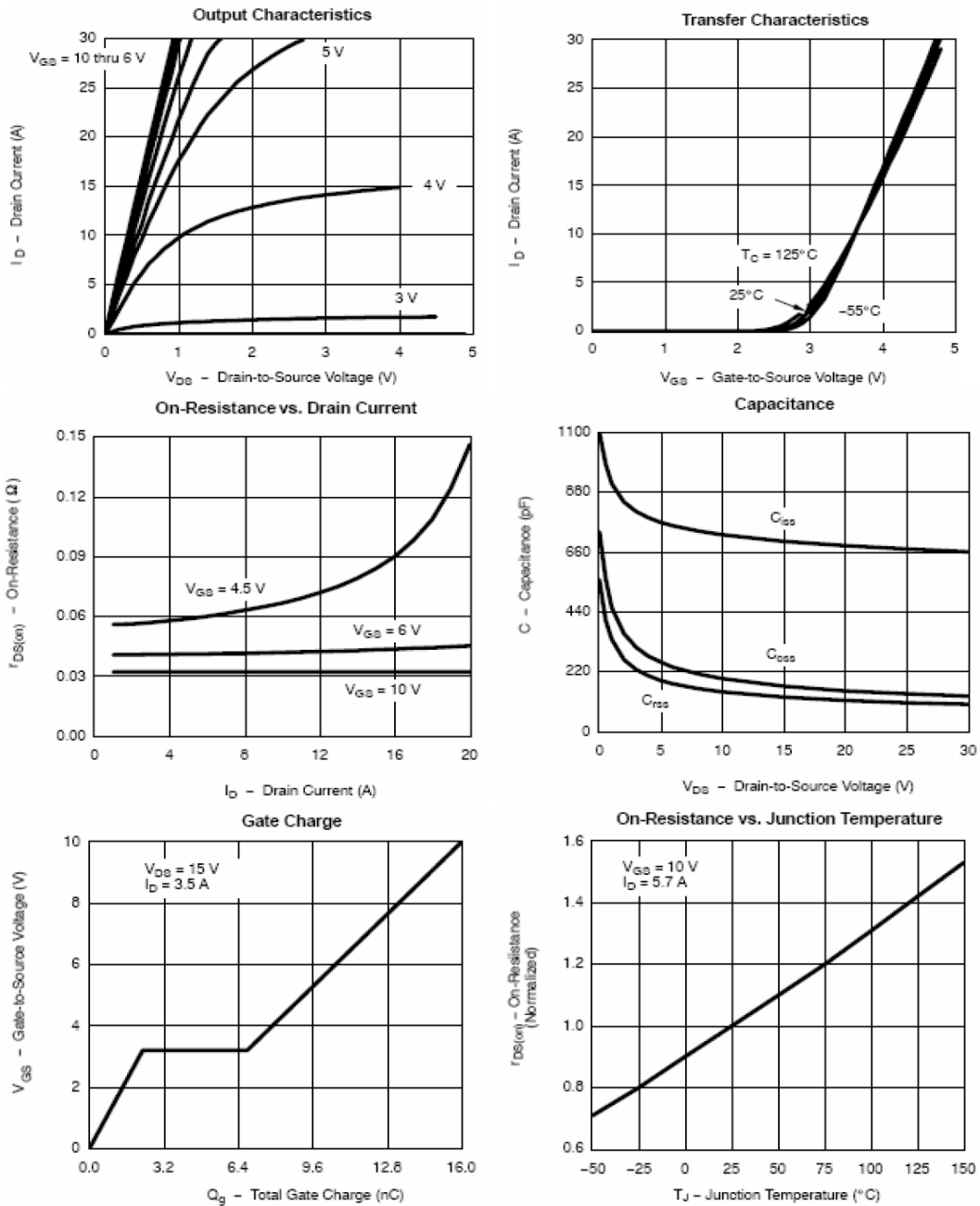


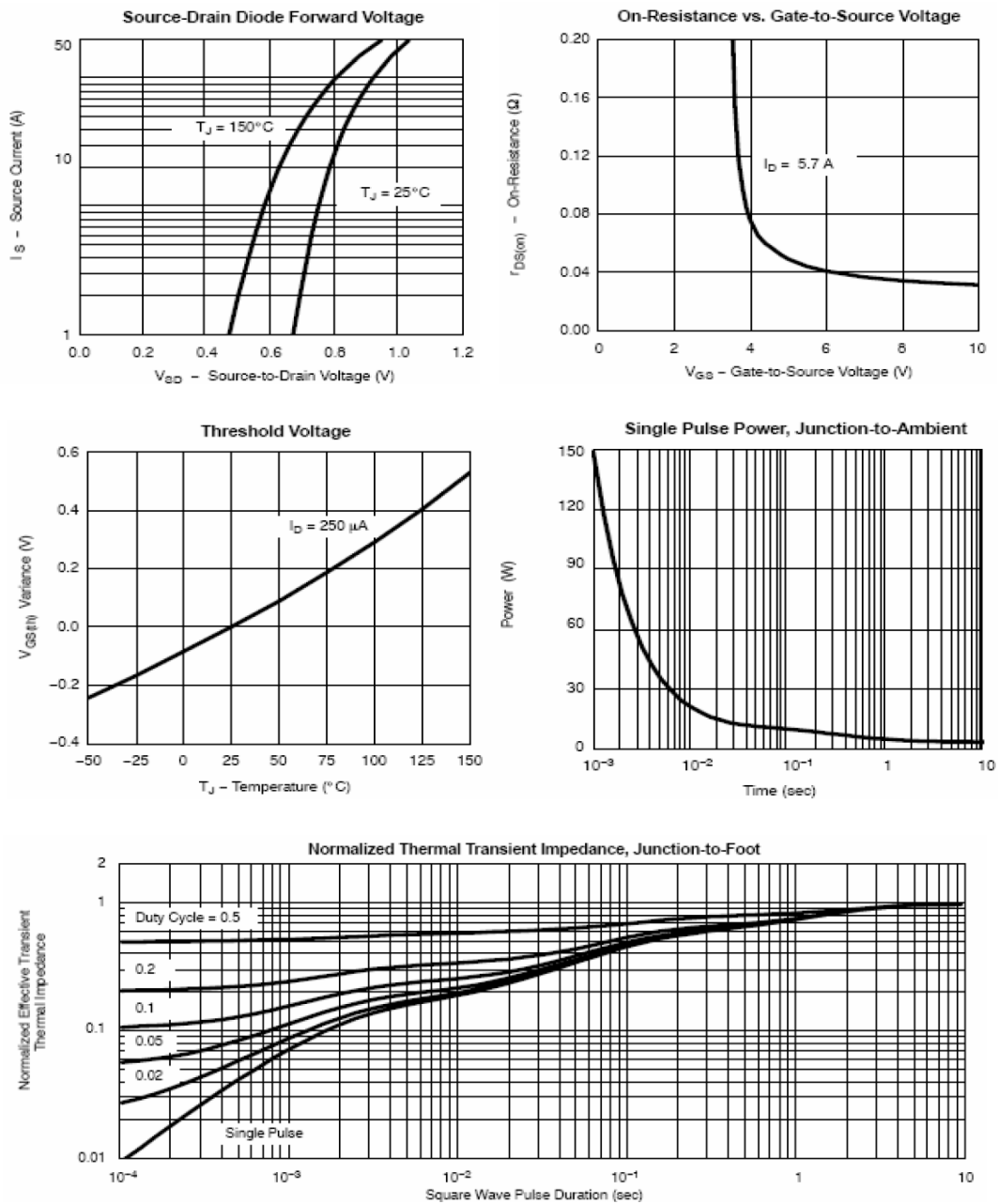
-25.0A

**ELECTRICAL CHARACTERISTICS** ( Ta = 25°C Unless otherwise noted )

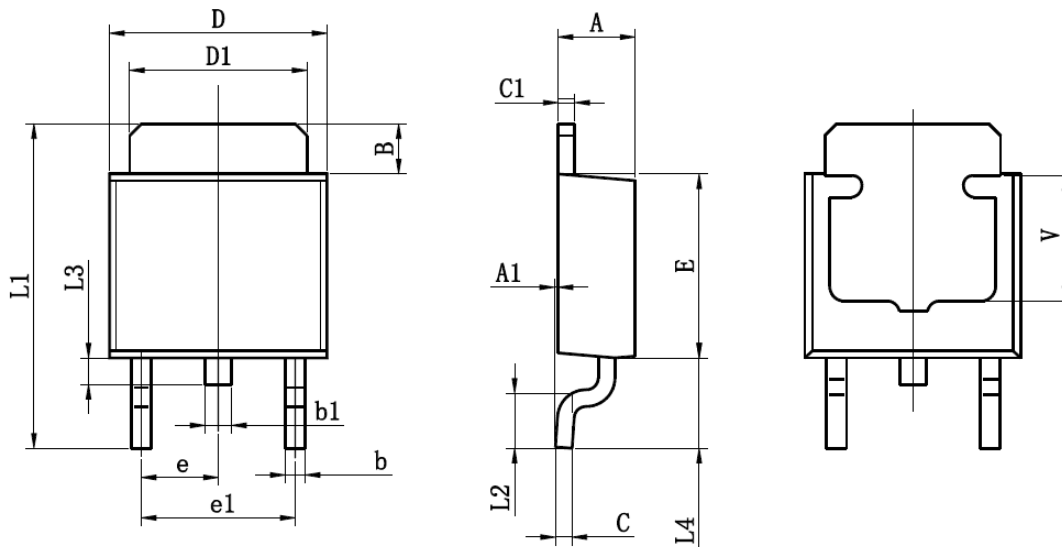
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-3.0	V
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-40V, V_{GS}=0V$			-1	uA
		$V_{DS}=-40V, V_{GS}=0V$ $T_J=55^\circ C$			-5	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-25A$ $V_{GS}=-5.0V, I_D=-16A$		45 78	50 85	mΩ
Forward Transconductance	gfs	$V_{DS}=-10V, I_D=-8A$		8		S
Diode Forward Voltage	$V_{SD}$	$I_S=-16A, V_{GS}=0V$			-1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=-15V, V_{DS}=-100V$ $I_D=-3.5A$		16.5		nC
Gate-Source Charge	$Q_{gs}$			2.8		
Gate-Drain Charge	$Q_{gd}$			4.5		
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V$ $F=1MHz$		700		pF
Output Capacitance	$C_{oss}$			129		
Reverse Transfer Capacitance	$C_{rss}$			75		
Turn-On Time	$t_{d(on)}$ $t_r$	$V_{DD}=-15V, R_L=15\Omega$ $R_{GEN}=-10V, R_G=6\Omega$ $I_D=-1.0A$			25	nS
					26	
Turn-Off Time	$t_{d(off)}$ $t_f$				70	
					50	

### TYPICAL CHARACTERISTICS



**TYPICAL CHARACTERISTICS**


**TO-252-2L PACKAGE OUTLINE**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300TYP		0.091TYP	
e1	4.500	4.700	0.177	0.185
L1	9.500	9.900	0.374	0.390
L2	1.400	1.780	0.055	0.070
L3	0.650	0.950	0.026	0.037
L4	2.550	2.900	0.100	0.114
V	3.80REF		0.150REF	