MST26P05

P-Channel 30-V (D-S) MOSFET

Description

The MST26P05 is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the small power switching and load switch applications.

The device meets the RoHS and Green Product requirement with full function reliability approved.

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

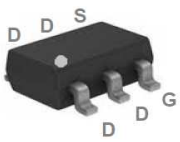
Typical Applications

- Notebook
- Load Switch
- Hand-held Instrument

Package type：SOT-26

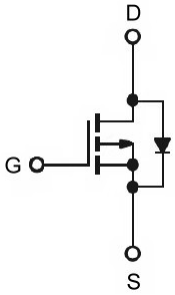
Packing & Order Information

3,000/Reel

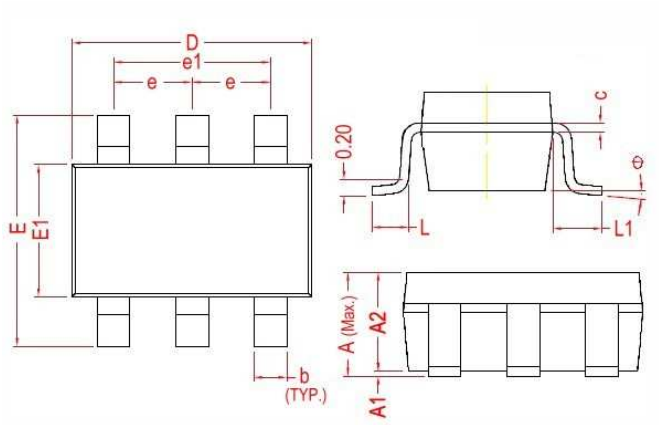


RoHS Compliant

Graphic Symbol

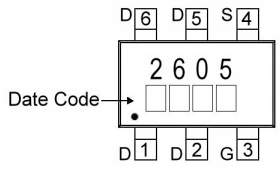


Package Dimension



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.45 Max.		L	0.37 Ref.	
A1	0	0.15	L1	0.60 Ref.	
A2	0.90	1.30	θ	0°	10°
c	0.12 Ref.		b	0.30	0.50
D	2.70	3.10	e	0.95 Ref.	
E	2.60	3.00	e1	1.90 Ref.	
E1	1.40	1.80			

Marking



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MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (unless otherwise specified)			
Symbol	**Parameter**	**Value**	**Units**
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current[1] (T_A=25°C)	-4.3	A
	Continuous Drain Current[1] (T_A=70°C)	-3.5	A
I_{DM}	Pulsed Drain Current[2] (T_A=25°C)	-16	A
P_D	Power Dissipation[3] (T_A=25°C)	1.1	W
T_J/T_{STG}	Operating Junction and Storage Temperature	-55 to +150	°C

Thermal Resistance Ratings			
Symbol	**Parameter**	**Maximum**	**Units**
$R_{\theta JA}$	Maximum Junction-to-Ambient[1]	110	°C/W

Electrical Characteristics(T_J=25°C unless otherwise specified)						
Symbol	**Parameter**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
$V_{GS\ (th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1.0	-	-2.5	V
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-30	-	-	V
g_{fs}	Forward Transconductance	V_{DS}=-5V, I_D=-3.0A	-	11	-	S
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-24V, V_{GS}=0V, T_J=25°C V_{DS}=-24V, V_{GS}=0V, T_J=55°C	-	-	-1 -5	μA
$R_{DS\ (on)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-4.0A V_{GS}=-4.5V, I_D=-3.0A	- -	- -	52 75	mΩ
V_{SD}	Diode Forward Voltage[2]	I_S=-1.6A, V_{GS}=0V, T_J=25°C	-	-	-1.2	V
I_S	Continuous Source Current[1,4] **(Diode)**	V_G=V_D=0V, Force Current	-	-	-4.3	A
I_{SM}	Pulsed Source Current[2,4] **(Diode)**		-	-	-16	

Notes

1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
3. The power dissipation is limited by 150℃ junction temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

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Dynamic and switching Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Q_g	Total Gate Charge[2]	V_{DS} =-15V I_D =-3.0A V_{GS} =-4.5V	--	6.4	--	nC
Q_{gs}	Gate-Source Charge		--	2.3	--	
Q_{gd}	Gate-Drain Charge		--	1.9	--	
$t_{d(on)}$	Turn-On Delay Time[2]	V_{DS} =-15V I_D =-3.0A V_{GS} =-10V R_G =3.3Ω	--	2.8	--	ns
t_r	Rise Time		--	8.4	--	
$t_{d(off)}$	Turn-Off Delay Time		--	39	--	
t_f	Fall Time		--	6	--	
C_{ISS}	Input Capacitance	V_{DS} =-15V V_{GS} =0V f =1.0MHz	--	583	--	pF
C_{OSS}	Output Capacitance		--	100	--	
C_{RSS}	Reverse Transfer Capacitance		--	80	--	

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- **Typical Electrical Characteristics**

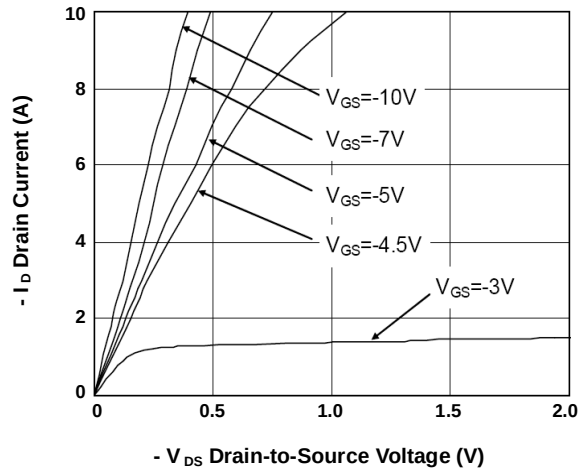

FIG.1-Typical Output Characteristics

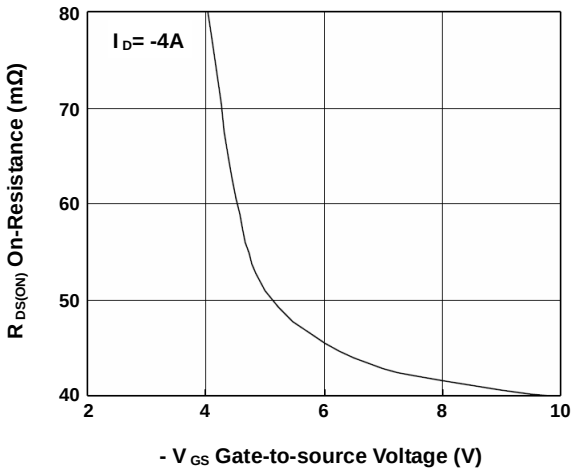

FIG.2-On-Resistance vs. G-S Voltage

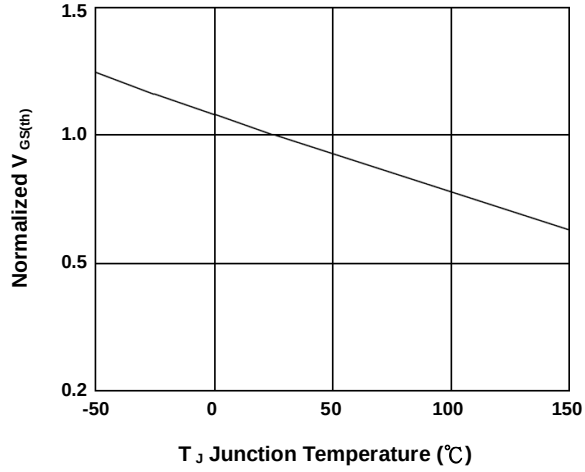

FIG.3-Normalized $V_{GS(th)}$ vs. T_J

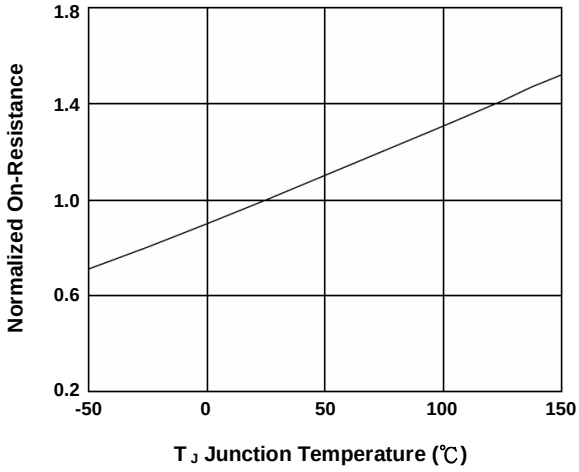

FIG.4-Normalized R_{DSON} vs. T_J

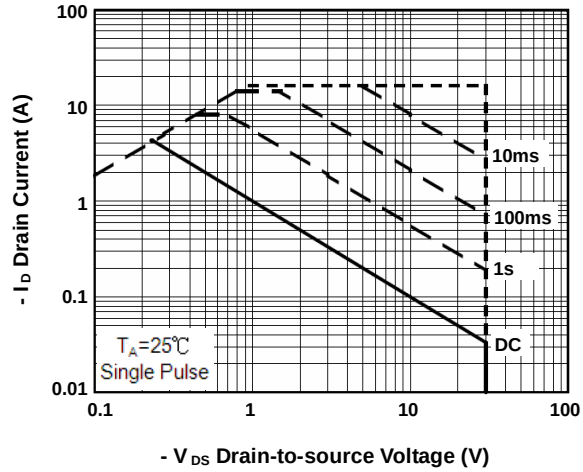

FIG.5-Safe Operating Area

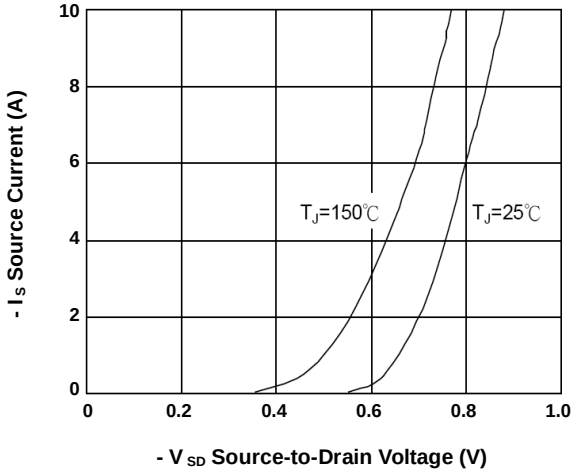

FIG.6-Forward Characteristics of Reverse

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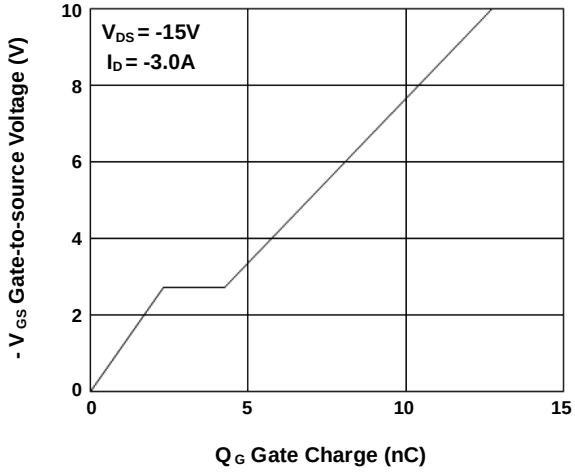

FIG.7-Gate Charge Characteristics

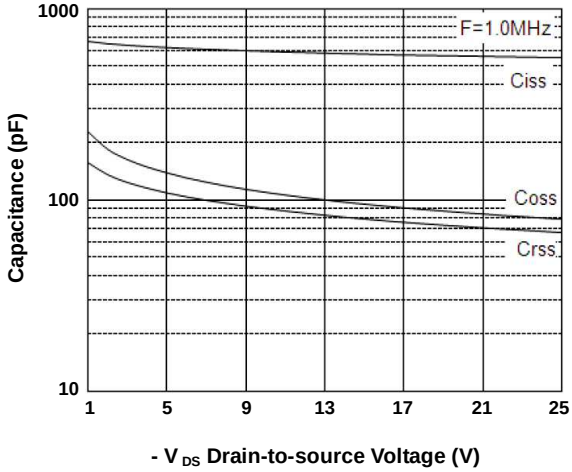

FIG.8-Capacitance Characteristics

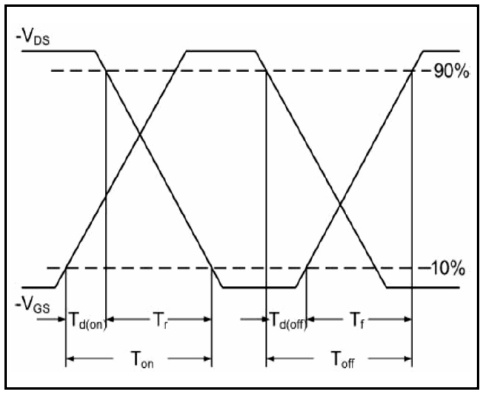

FIG.9-Switching Time Waveform

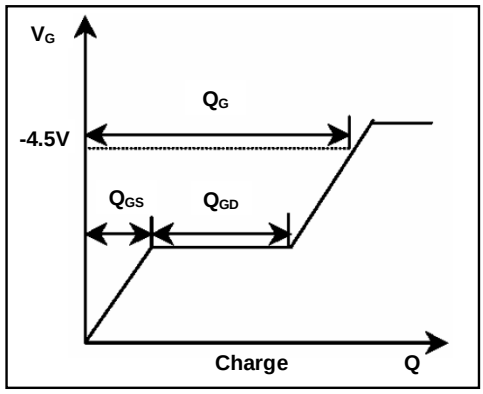

FIG.10-Gate Charge Waveform

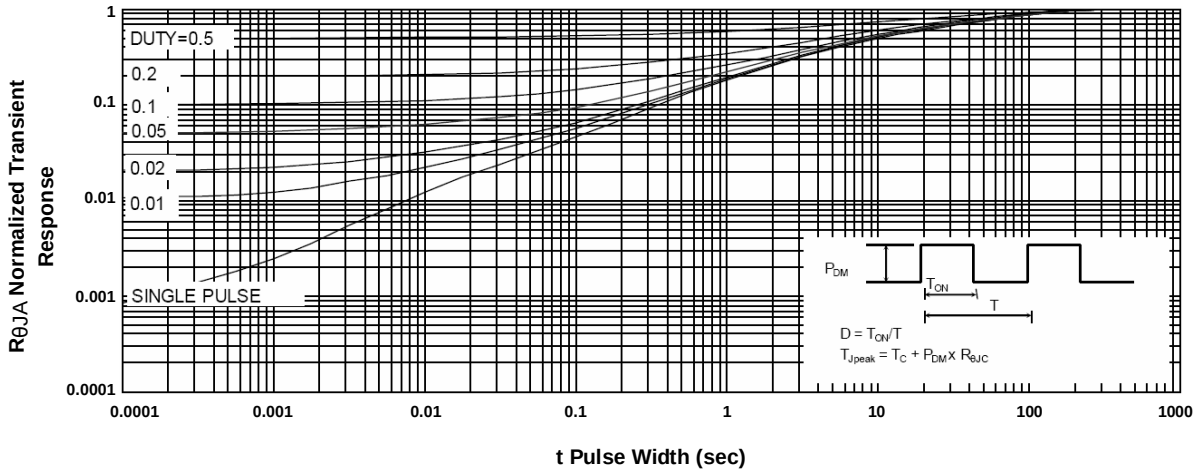

FIG.11-Normalized Maximum Transient Thermal Impedance

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