MST26P21D

Dual P-Channel 20-V (D-S) MOSFET

Description

The MST26P21D are using trench DMOS technology. This advanced technology has been especially tailored to minimize $R_{DS(ON)}$, provide superior switching performance. The devices are well suited for high efficiency fast switching applications.

The devices meet the RoHS and Green Product requirement with full function reliability approved.

Features

- Advanced DMOS Trench technology
- Fast Switching
- Suit for 1.8V Gate Drive Applications
- Green Device Available

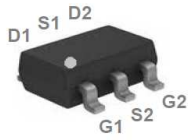
Typical Applications

- Notebook
- Load Switch
- Hand-held Instrument

Package type：SOT-26

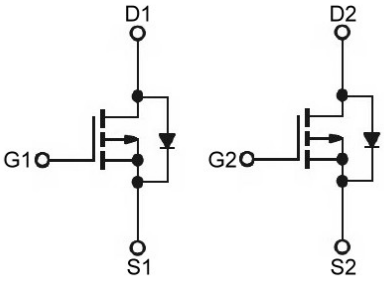
Packing & Order Information

3,000/Reel

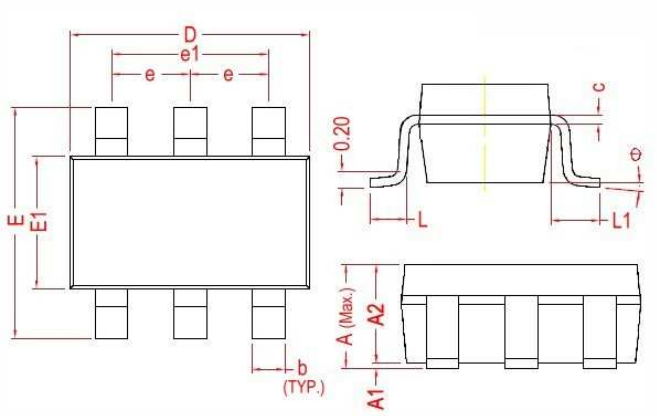


RoHS Compliant

Graphic Symbol

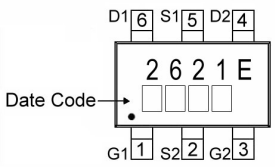


Package Dimension



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	-20	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Continuous Drain Current[1] (T_A=25°C)	-2.5	A
	Continuous Drain Current[1] (T_A=70°C)	-2.0	A
I_{DM}	Pulsed Drain Current[2] (T_A=25°C)	-10	A
P_D	Power Dissipation[3] (T_A=25°C)	1.25	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]	100	°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	-0.3	-0.6	-1.0	V
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-20	-	-	V
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±10V	-	-	±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-20V, V_{GS}=0V, T_J=25°C	-	-	-1	μA
		V_{DS}=-16V, V_{GS}=0V, T_J=125°C			-10	
$R_{DS\ (on)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-4.5V, I_D=-2.5A	-	-	90	mΩ
		V_{GS}=-2.5V, I_D=-2.0A	-	-	130	
		V_{GS}=-1.8V, I_D=-1.0A	-	-	180	
V_{SD}	Diode Forward Voltage[2]	I_S=-1A, V_{GS}=0V, T_J=25°C	-	-	-1.0	V
I_S	Continuous Source Current[1,4] **(Diode)**	V_G=V_D=0V, Force Current	-	-	-2.5	A
I_{SM}	Pulsed Source Current[2,4] **(Diode)**		-	-	-5.0	

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}=-10V I_D=-2A V_{GS}=-4.5V	--	4.8	--	nC
Q_{gs}	Gate-Source Charge		--	0.5	--	
Q_{gd}	Gate-Drain Charge		--	1.9	--	
$t_{d(on)}$	Turn-On Delay Time[2]	V_{DS}=-10V I_D=-1A V_{GS}=-4.5V R_G=25Ω	--	3.5	--	ns
t_r	Rise Time		--	12.6	--	
$t_{d(off)}$	Turn-Off Delay Time		--	32.6	--	
t_f	Fall Time		--	8.4	--	
C_{ISS}	Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1.0MHz	--	350	--	pF
C_{OSS}	Output Capacitance		--	66	--	
C_{RSS}	Reverse Transfer Capacitance		--	50	--	

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- **Typical Electrical Characteristics**

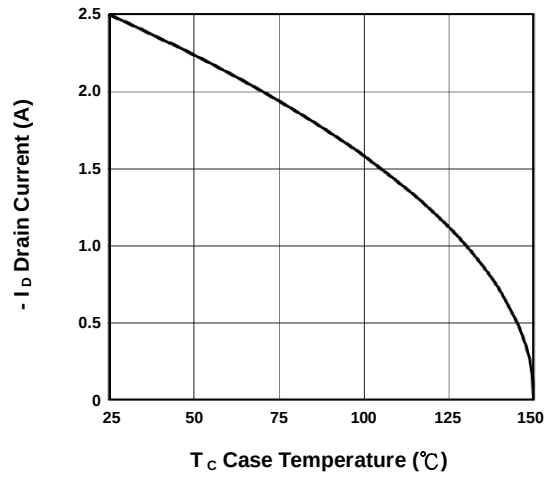

FIG.1-Drain Current vs. T_C

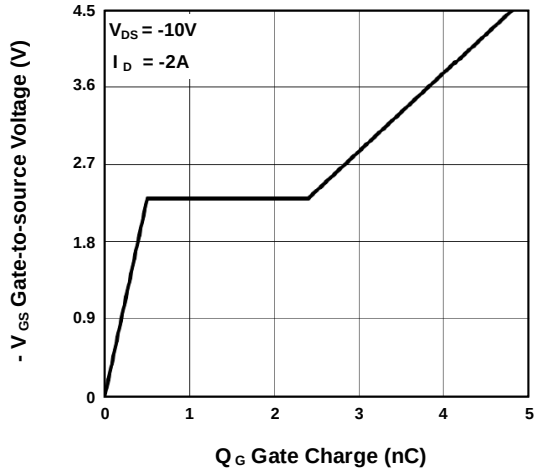

FIG.2-Gate Charge Characteristics

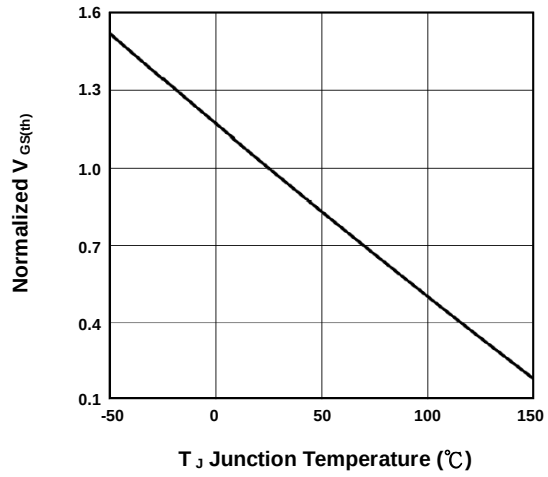

FIG.3-Normalized $V_{GS(th)}$ vs. T_J

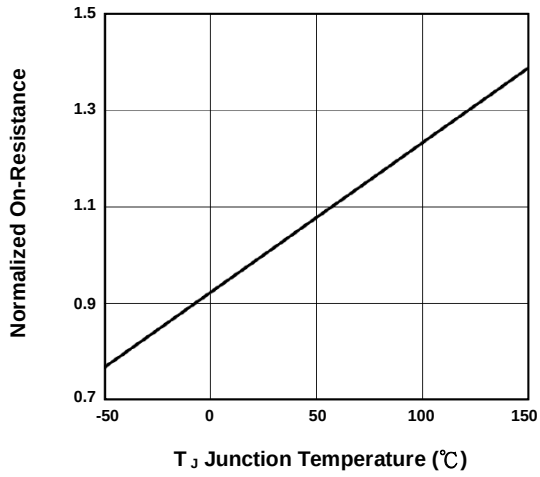

FIG.4-Normalized R_{DSON} vs. T_J

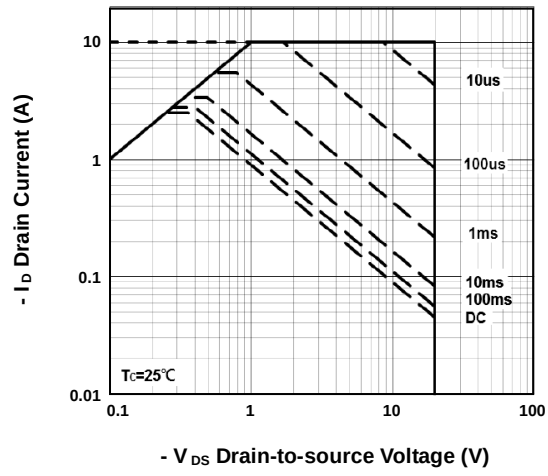

FIG.5-Safe Operating Area

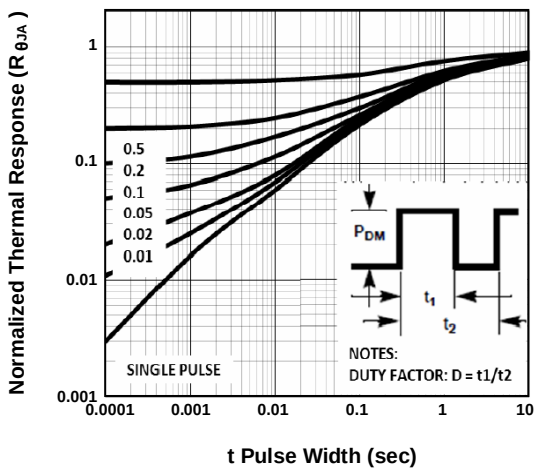

FIG.6-Transient Thermal Impedance

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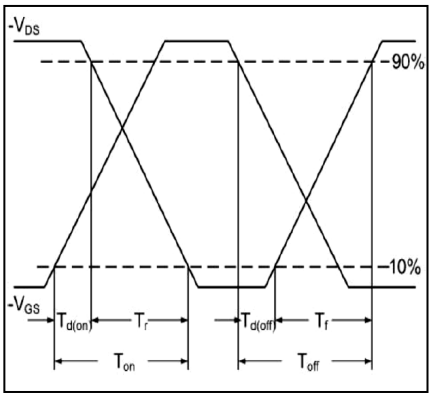

FIG.7-Switching Time Waveform

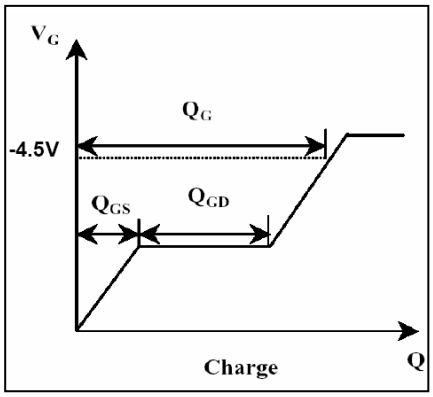

FIG.8-Gate Charge Waveform

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