

MST26P11B

P-Channel 60-V (D-S) MOSFET

Description

The MST26P11B 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

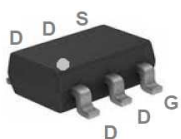
Typical Applications

- Motor Drive
- Power Tools
- LED Lighting

Package type : SOT-26

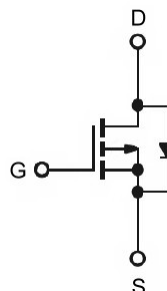
Packing & Order Information

3,000/Reel

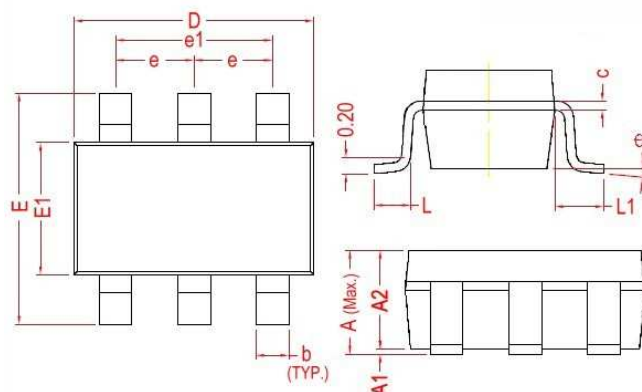


RoHS Compliant

Graphic Symbol

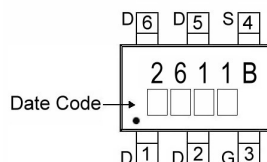


Package Dimension



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	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current ¹ ($T_A = 25^\circ\text{C}$)	-2.4	A
	Continuous Drain Current ¹ ($T_A = 70^\circ\text{C}$)	-1.7	A
I_{DM}	Pulsed Drain Current ² ($T_A = 25^\circ\text{C}$)	-4.5	A
P_D	Power Dissipation ³ ($T_A = 25^\circ\text{C}$)	1.1	W
T_J/T_{STG}	Operating Junction and Storage Temperature	-55 to +150	$^\circ\text{C}$

Thermal Resistance Ratings

Symbol	Parameter	Maximum	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient ¹	110	$^\circ\text{C/W}$

Electrical Characteristics($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$	-1.0	-	-3.0	V
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}$, $I_D = -250\mu\text{A}$	-60	-	-	V
g_{fs}	Forward Transconductance	$V_{DS} = -10\text{V}$, $I_D = -2\text{A}$	-	5.8	-	S
I_{GSS}	Gate-Source Leakage Current	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$	-	-	± 100	nA
I_{DSS}	Drain-Source Leakage Current	$V_{DS} = -48\text{V}$, $V_{GS} = 0\text{V}$, $T_J = 25^\circ\text{C}$	-	-	-1	μA
		$V_{DS} = -48\text{V}$, $V_{GS} = 0\text{V}$, $T_J = 55^\circ\text{C}$	-	-	-5	μA
$R_{DS(on)}$	Static Drain-Source On-Resistance ²	$V_{GS} = -10\text{V}$, $I_D = -2\text{A}$	-	-	175	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}$, $I_D = -1\text{A}$	-	-	220	$\text{m}\Omega$
V_{SD}	Diode Forward Voltage ²	$I_S = -1\text{A}$, $V_{GS} = 0\text{V}$, $T_J = 25^\circ\text{C}$	-	-	-1.2	V
I_S	Continuous Source Current ^{1,4} (Diode)	$V_G = V_D = 0\text{V}$, Force Current	-	-	-2.4	A
I_{SM}	Pulsed Source Current ^{2,4} (Diode)		-	-	-4.5	

Notes

1. Surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. The power dissipation is limited by 150°C 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	$V_{DS} = -20V$	--	4.6	--	nC
Q_{gs}	Gate-Source Charge	$I_D = -2A$	--	1.39	--	
Q_{gd}	Gate-Drain Charge	$V_{GS} = -4.5V$	--	1.62	--	
$t_{d(on)}$	Turn-On Delay Time ²	$V_{DS} = -15V$	--	17.4	--	ns
t_r	Rise Time	$I_D = -1A$	--	5.4	--	
$t_{d(off)}$	Turn-Off Delay Time	$V_{GS} = -10V$	--	37.2	--	
t_f	Fall Time	$R_G = 3.3\Omega$	--	2.4	--	
C_{ISS}	Input Capacitance	$V_{DS} = -15V$	--	531	--	pF
C_{OSS}	Output Capacitance	$V_{GS} = 0V$	--	59	--	
C_{RSS}	Reverse Transfer Capacitance	$f = 1.0MHz$	--	38	--	

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Typical Electrical Characteristics

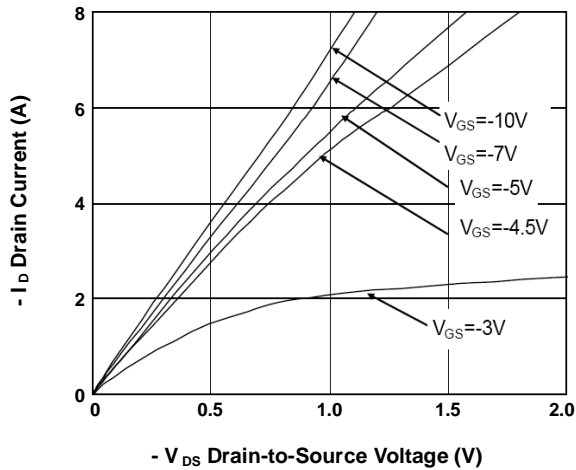


FIG.1-Typical Output Characteristics

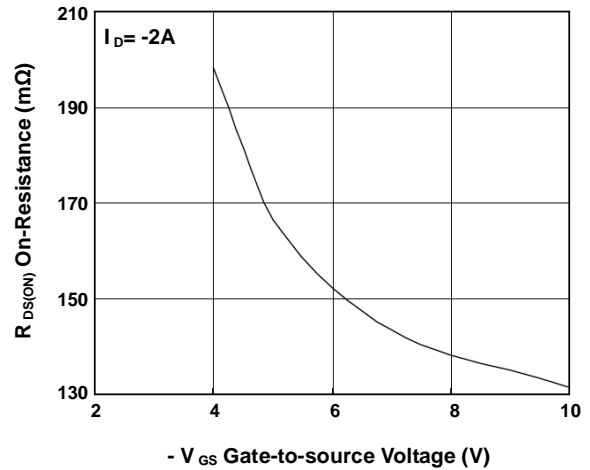


FIG.2-On-Resistance vs. G-S Voltage

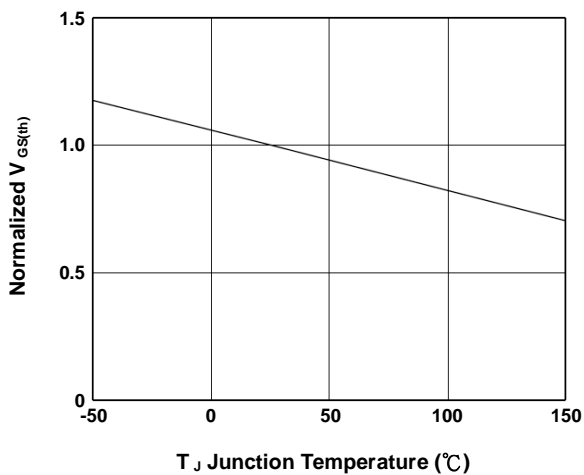


FIG.3-Normalized $V_{GS(th)}$ vs. T_J

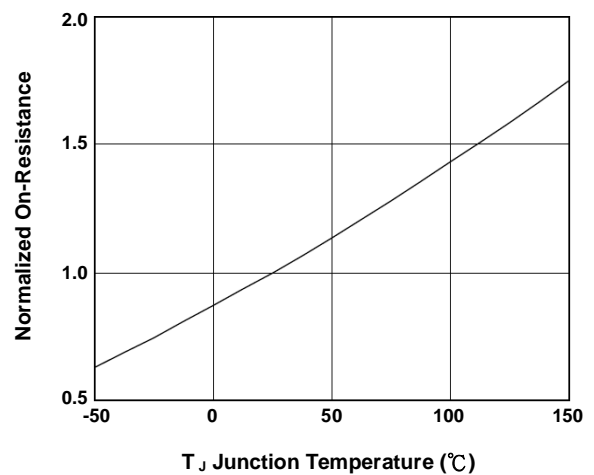


FIG.4-Normalized $R_{DS(on)}$ vs. T_J

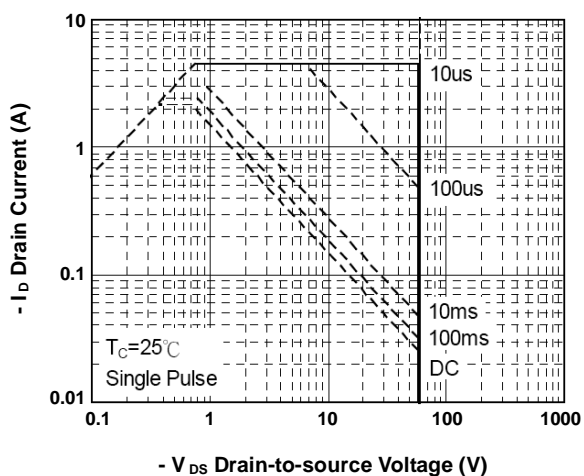


FIG.5-Safe Operating Area

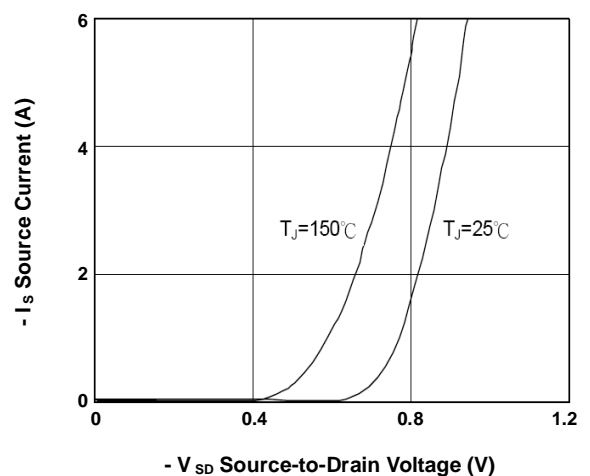


FIG.6-Forward Characteristics of Reverse

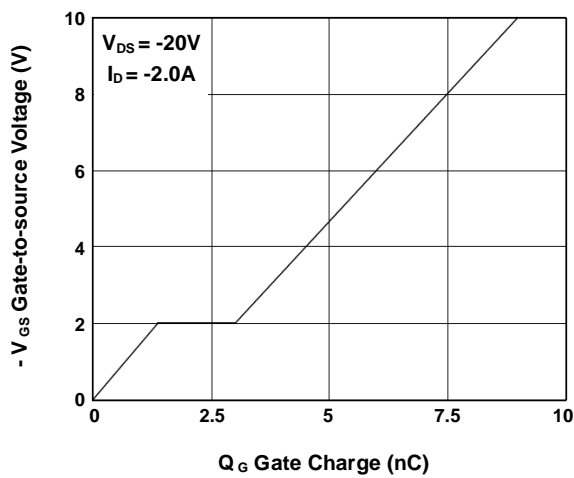


FIG.7-Gate Charge Characteristics

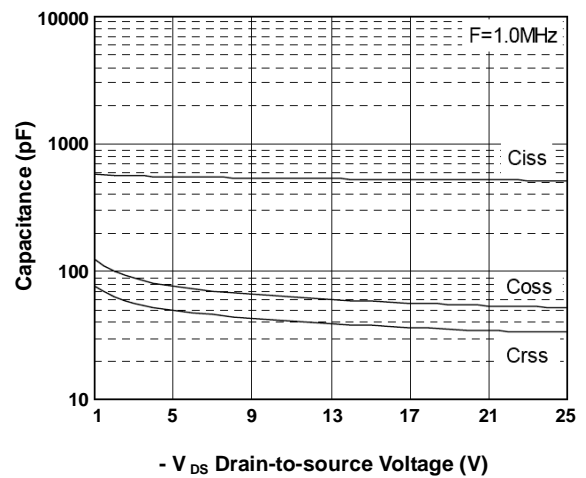


FIG.8-Capacitance Characteristics

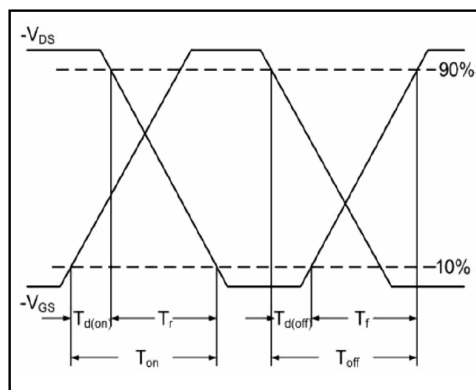


FIG.9-Switching Time Waveform

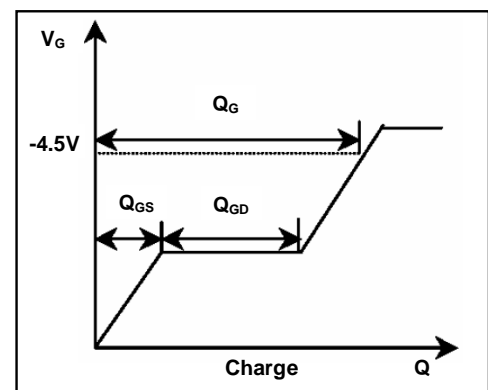


FIG.10-Gate Charge Waveform

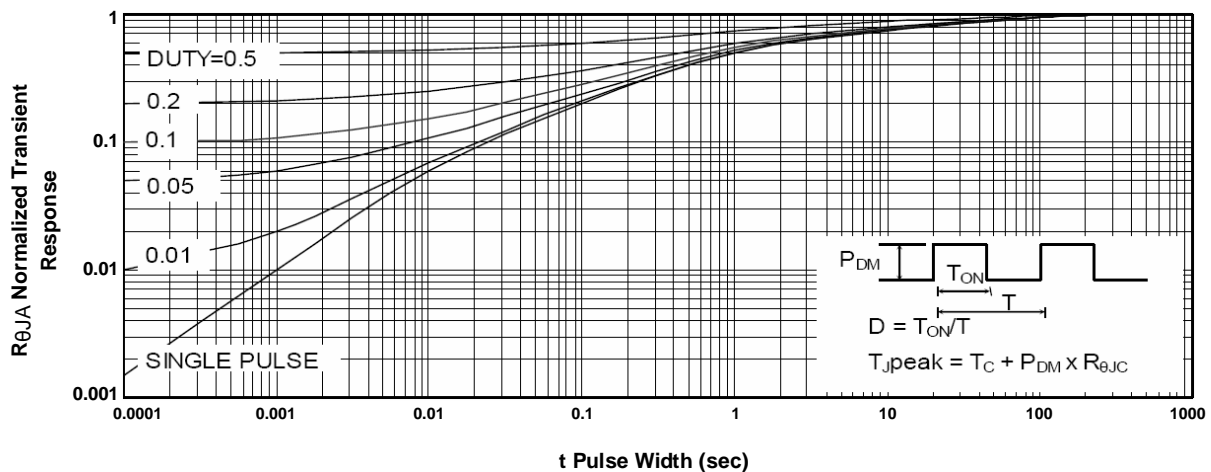


FIG.11-Normalized Maximum Transient Thermal Impedance

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