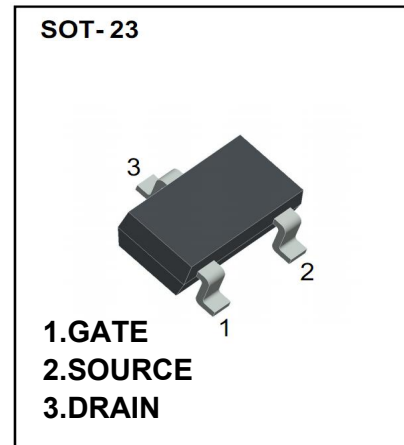
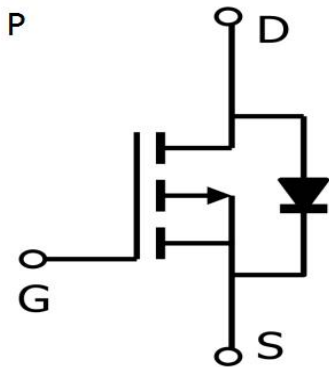


Features

The TW30P06 is the high cell density trench P- ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications. The TW30P06 meet the RoHS and Green Product requirement

Product Summary

V_{DS}	-30V
I_D	-6.0A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	< 35m Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	< 54m Ω



Maximum Ratings($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	$I_{D@T_A = 25^{\circ}\text{C}}$	-6	A
Continuous Drain Current	$I_{D@T_A = 100^{\circ}\text{C}}$	-4.6	
Pulsed Drain Current ①	I_{DM}	-18	
Power Dissipation ②	P_D	1.5	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	61.7	$^{\circ}\text{C/W}$
Operating Junction	T_J	-55~+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+151	$^{\circ}\text{C}$

Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = -250μA	-30			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = -250μA	-1.0	-1.5	-2.5	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = -30V, VGS =0V			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = - 10V, ID = -7A		26	35	mΩ
		VGS = - 4.5V, ID = -4A		34	54	mΩ
Diode Forward Voltage	VSD	IS=-7A,VGS=0V		-0.8	-1.2	V
Dynamic Parameters						
Input Capacitance	Ciss	VDS= -15V, VGS=0V, f=1.0MHz		982		pF
Output Capacitance	Coss			135		pF
Reverse Transfer Capacitance	Crss			109		pF
Total Gate Charge	Qg	VDS= -15V, ID= -4A, VGS= -10V		10		nC
Gate Source Charge	Qgs			2		nC
Gate Drain Charge	Qgd			2.7		nC
Switching Parameters						
Turn-On DelayTime	td(on)	VDS= -15V, ID= -4A, VGS= -10V		11		ns
Turn-On Rise Time	tr			19		ns
Turn-Off DelayTime	td(off)			45		ns
Turn-Off Fall Time	tf			26		ns

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

Figure 1: Output Characteristics

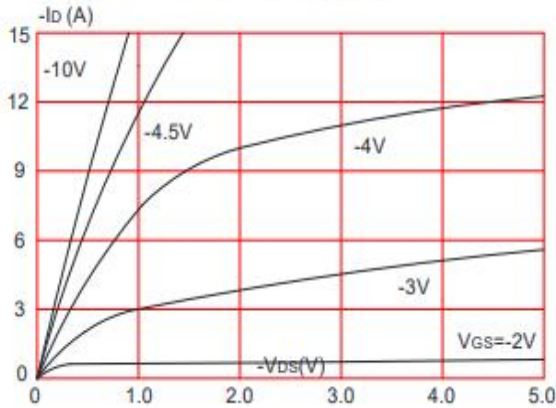


Figure 2: Typical Transfer Characteristics

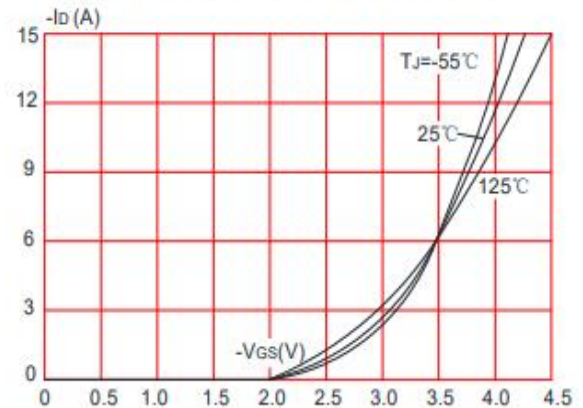


Figure 3: On-resistance vs. Drain Current

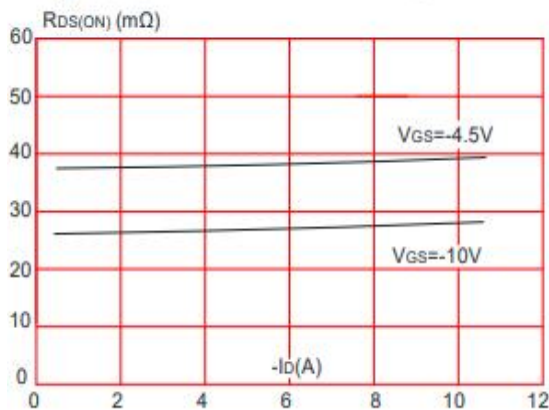


Figure 4: Body Diode Characteristics

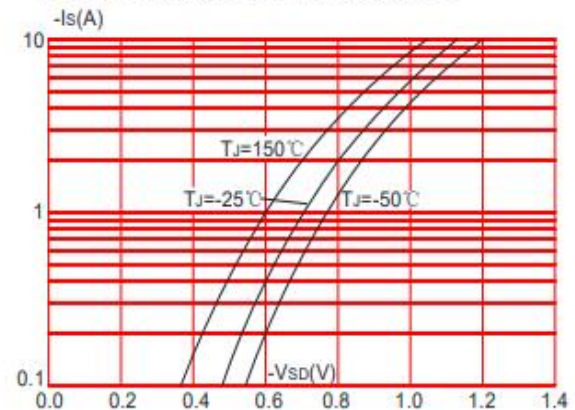


Figure 5: Gate Charge Characteristics

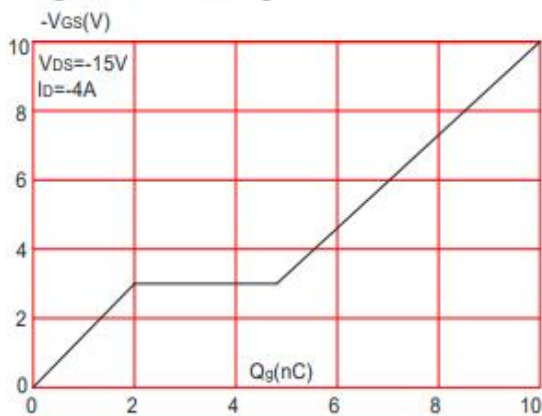
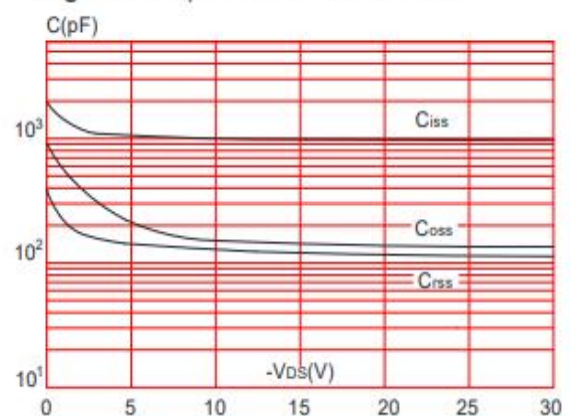


Figure 6: Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

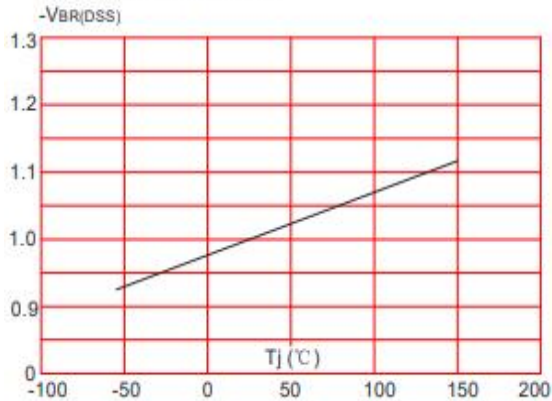


Figure 8: Normalized on Resistance vs. Junction Temperature

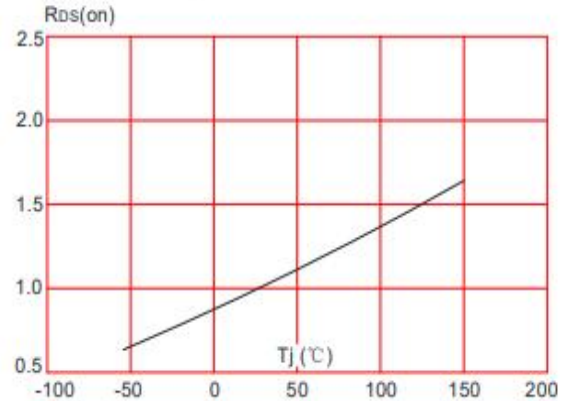


Figure 9: Maximum Safe Operating Area

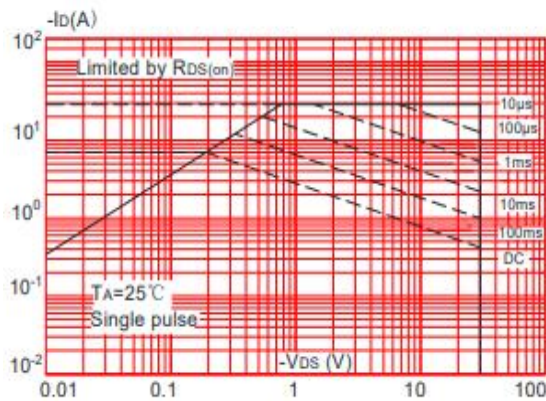
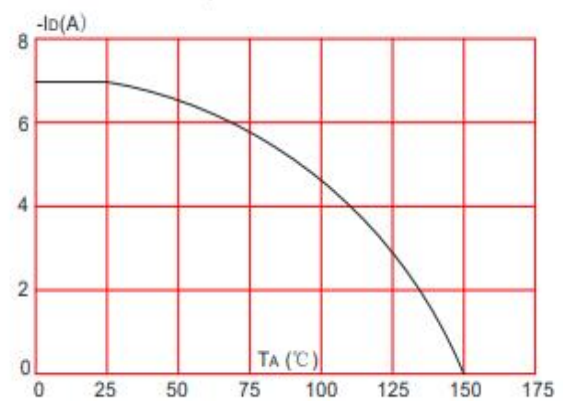
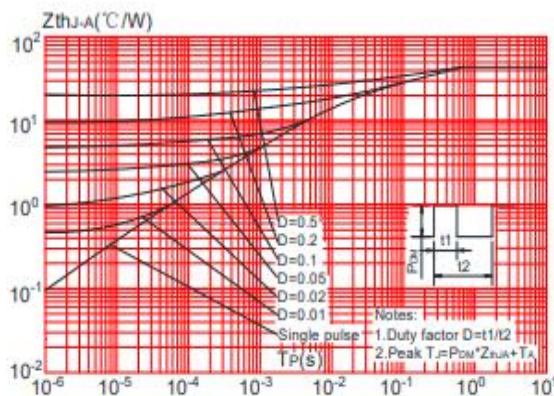


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature



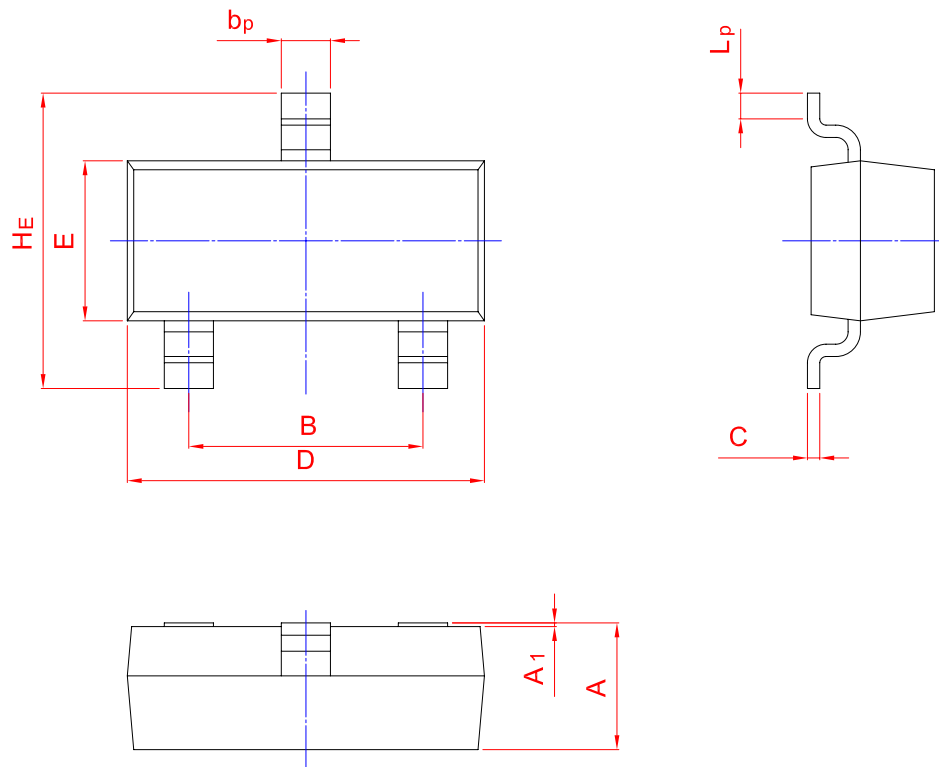
Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b_p	C	D	E	H_E	A_1	L_p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20