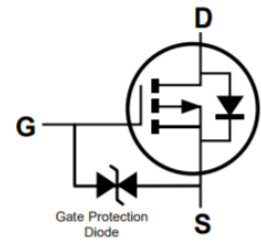


Features

- Voltage controlled p-channel small signal switch
- High density cell design for low $R_{DS(ON)}$
- High saturation current
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

HF

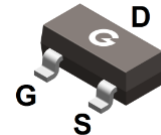


Typical Applications

- Line current interrupter in telephone sets
- High speed and line transformer drivers

Mechanical Data

- Case: SOT-23
- Molding Compound, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Plated Leads, Solderable Per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping	Marking Code
TBL05P06CES	SOT-23	3000 pcs / Tape & Reel	05P06

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	-60	V
V_{GSS}	Gate -Source Voltage	± 20	V
I_D	Continuous Drain Current	-0.5	A
I_{DM}	Peak Drain Current	-2	A
P_D	Power Dissipation	0.36	W
$R_{\theta JA}$	Junction-to-Air	350	$^\circ\text{C/W}$
T_J	Junction Temperature	-55 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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

Symbol	Parameter	Test conditions	MIN	TYP	MAX	UNIT
OFF Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-60	-	-	V
I _{DSS}	Drain to Source Leakage Current	V _{DS} = -50V, V _{GS} = 0V	-	-	-100	nA
I _{GSS}	Gate-body Leakage	V _{GS} = ±20V, V _{DS} = 0V	-	-	±10	uA
ON Characteristics						
R _{DS(ON)}	Drain-Source On-resistance *1	V _{GS} = -4.5V, I _D = -0.2A	-	-	3	Ω
		V _{GS} = -10V, I _D = -0.5A	-	-	2	
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250uA	-1	-1.8	-3	V
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V	-	50	-	pF
C _{oss}	Output Capacitance	V _{DS} = -25V	-	15	-	
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz	-	5	-	
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time *2	V _{DD} = -30V, I _D = -0.27A V _{GS} = -10V, R _G = 6Ω	-	2.5	5	nS
t _r	Turn-on Rise Time *2		-	6.3	13	
t _{d(off)}	Turn-Off Delay Time *2		-	10	20	
t _f	Turn-Off Fall Time *2		-	4.8	9.6	
Q _g	Total Gate Charge	V _{DS} = -25V, I _D = -0.1A V _{GS} = -5V	-	0.9	1.3	nC
Q _{gs}	Gate-Source Charge		-	0.2	-	
Q _{gd}	Gate-Drain Charge		-	0.3	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *1	I _{SD} = -0.26A, V _{GS} = 0V	-	-0.8	-1.4	V
I _s	Diode Continuous Forward Current	T _C = 25°C	-	-	-0.5	A

Notes:

- The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- Guaranteed by design, not subject to production

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

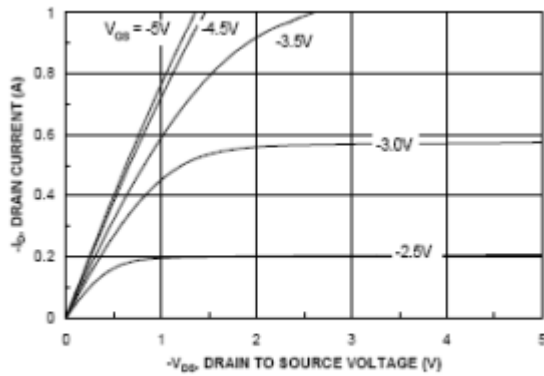


Figure 1. On-Region Characteristics.

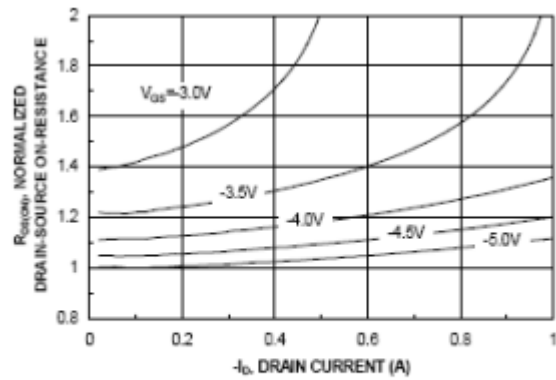


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

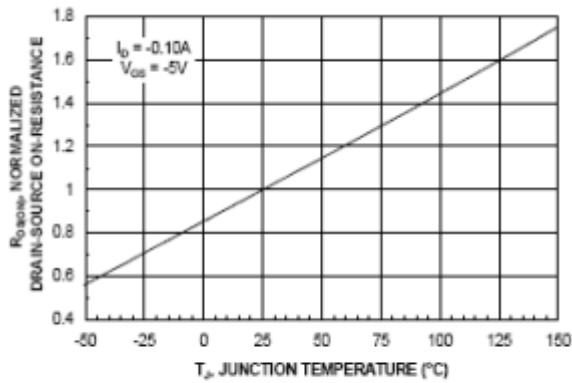


Figure 3. On-Resistance Variation with Temperature.

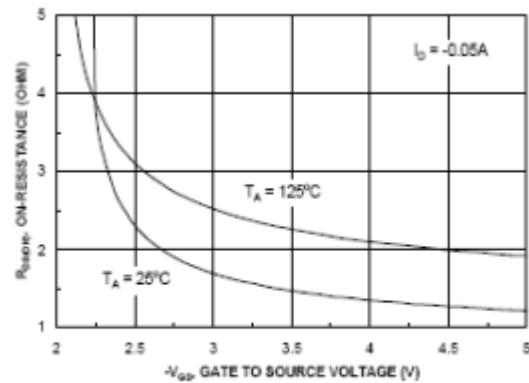


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

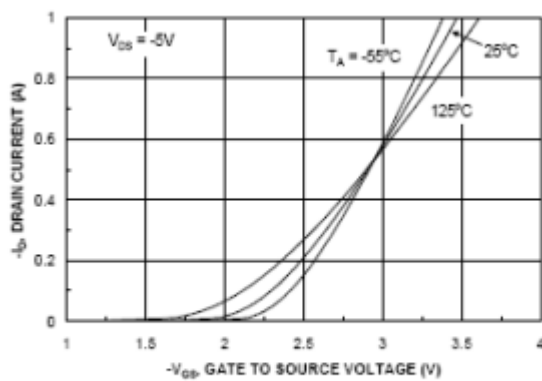


Figure 5. Transfer Characteristics.

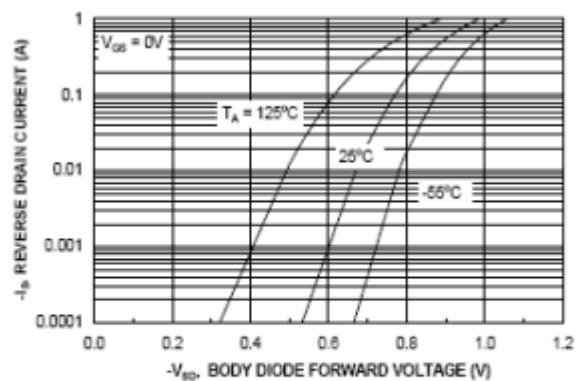


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

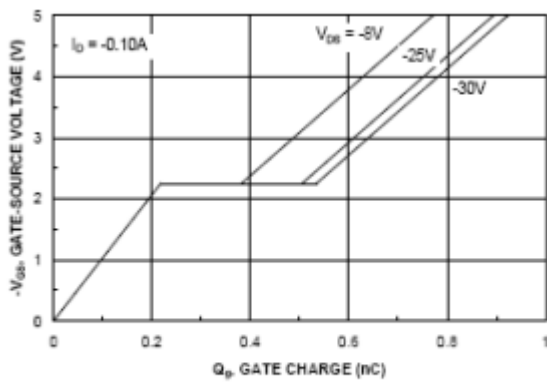


Figure 7. Gate Charge Characteristics.

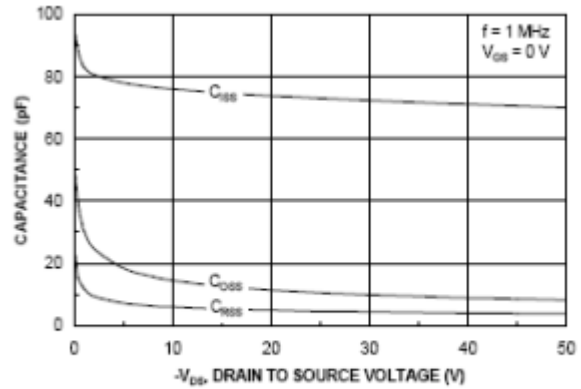


Figure 8. Capacitance Characteristics.

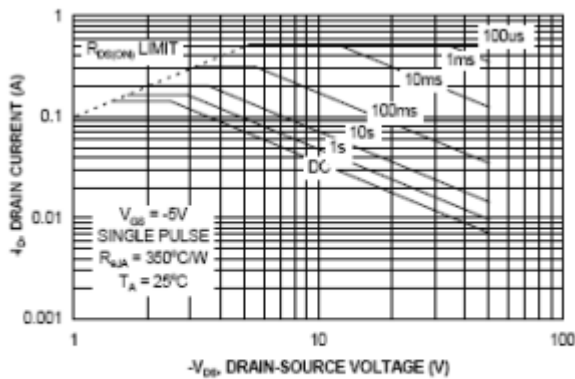


Figure 9. Maximum Safe Operating Area.

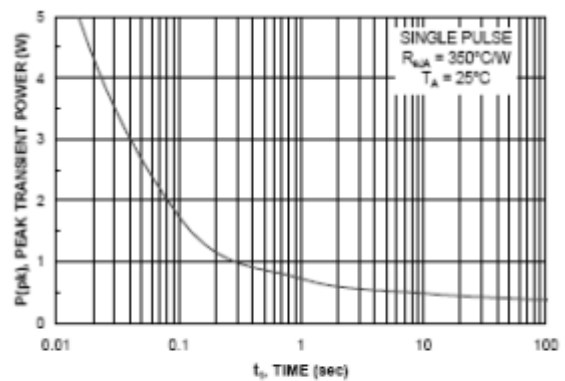


Figure 10. Single Pulse Maximum Power Dissipation.

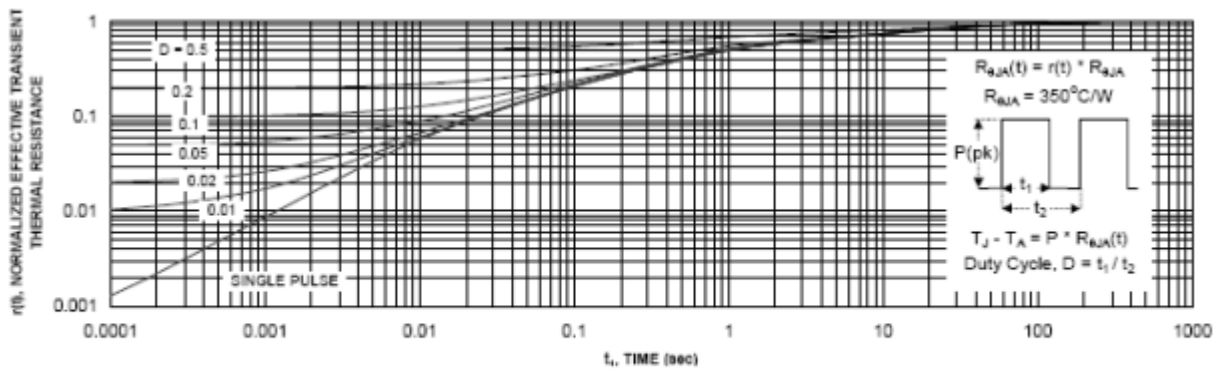
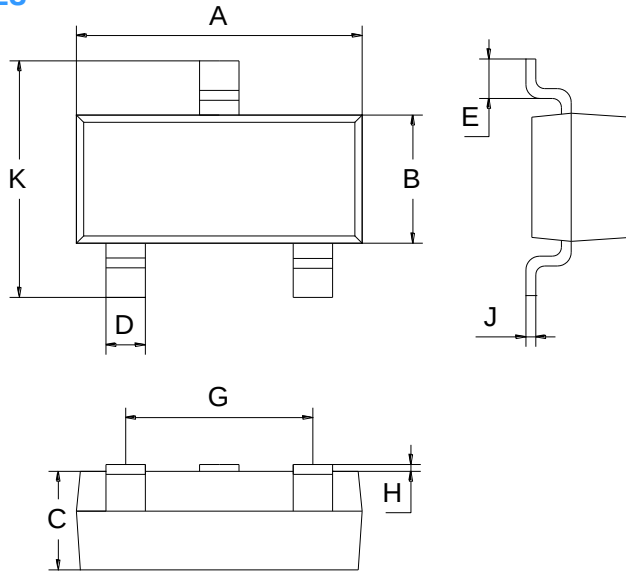


Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in Note 1a.
Transient thermal response will change depending on the circuit board design.

Package Outline Dimensions (unit: mm)

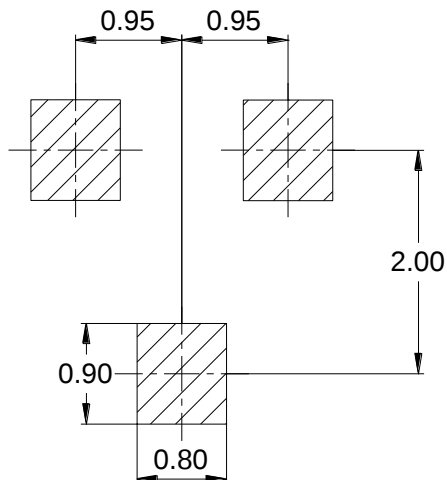
SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Mounting Pad Layout (unit: mm)

SOT-23



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