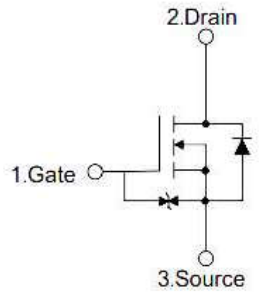
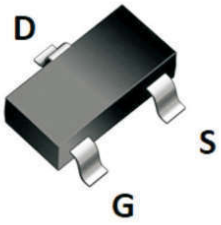
N-Channel Depletion Power MOSFET

MAIN CHARACTERISTICS

I_D	0.03A
V_{DSX}	600V
R_{DSON}-typ(@V_{GS}=10V)	< 700Ω(Type:350 Ω)





SOT-23

Features

- Halogen and Antimony Free
- Depletion Mode
- ESD Improved Capability

Marking Code	
BSS126	605E

Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSX}	600	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.03	A
Continuous Drain Current Tc=70℃		0.024	
Pulsed Drain Current	I_{DM}	0.12	
Power Dissipation	P_D	0.5	W
Gate Source ESD (HBM-C=100pF, R=1.5kΩ)	$V_{ESD(G-S)}$	300	V
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	-55 to 150	℃
Thermal Characteristics			
Parameter	**Symbol**	**Typ.**	**Units**
Maximum Junction-to-Ambient	$R_{\theta JA}$	250	℃/W

Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
OFF Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSX}$	V_{GS} = -5V, I_D = 250μA	600	-	-	V
Gate Leakage Current	I_{GSS}	V_{GS} = ±10V	-	-	±100	nA
Off-state Drain to Source Current	$I_{D(off)}$	V_{DS} =600V, V_{GS} = -5V	-	-	0.1	μA
		V_{DS} =480V, V_{GS} = -5V,T_a=125℃	-	-	10	μA
ON Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = 3V, I_D = 8μA	-2.7	-1.8	-1	V
On-state drain current	I_{DSS}	V_{GS} = 0V, V_{DS} = 25V	12	-	-	mA
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 0V, I_D = 3mA	-	350	700	Ω
		V_{GS} = 10V, I_D = 16mA	-	400	800	
Dynamic Characteristics						
Forward transconductance	gfs	V_{DS} = 50V, I_D = 0.01A	8	17	-	mS
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = -5V, f = 1MHz	-	50	-	pF
Output Capacitance	C_{oss}		-	4.53	-	
Reverse Transfer Capacitance	C_{rss}		-	1.08	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=300V, V_{GS}=-5…7V R_G=6Ω, I_D=0.01A	-	9.9	-	ns
Turn-On Rise Time	t_r		-	55.8	-	
Turn-Off DelayTime	$t_{d(off)}$		-	56.4	-	
Turn-Off FallTime	t_f		-	136	-	
Total Gate Charge	Q_g	V_{DD}=400V,V_{GS}=-5V to 5V, I_D=0.01A	-	1.14	-	nC
Gate-Source Charge	Q_{gs}		-	0.5	-	
Gate-Drain Charge	Q_{gd}		-	0.37	-	
Drain-source Diode Characteristics						
Diode Forward Current	I_S	T_a=25	-	-	0.025	A
Pulse Diode Forward Current	I_{SM}		-	-	0.1	A
Forward Diode Voltage	V_{SD}	V_{GS} = -5V, I_F = 16mA	-	-	1.2	V
Gate-source Zener diode						
Gate-source breakdown voltage	V_{GSO}	I_{GS}= ±1mA (Open Drain)	20	-	-	V

Ratings and Characteristic Curves

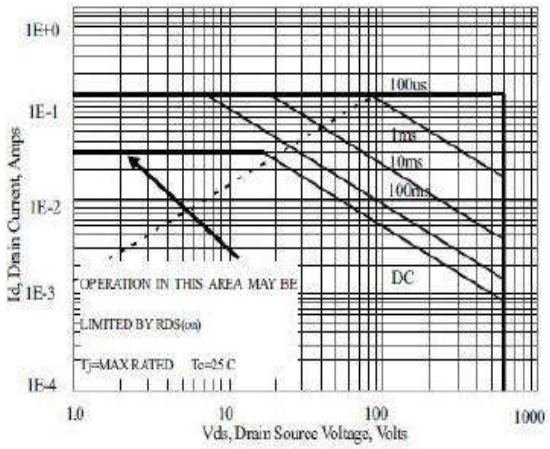


Figure 1 Maximum Forward Bias Safe Operating Area

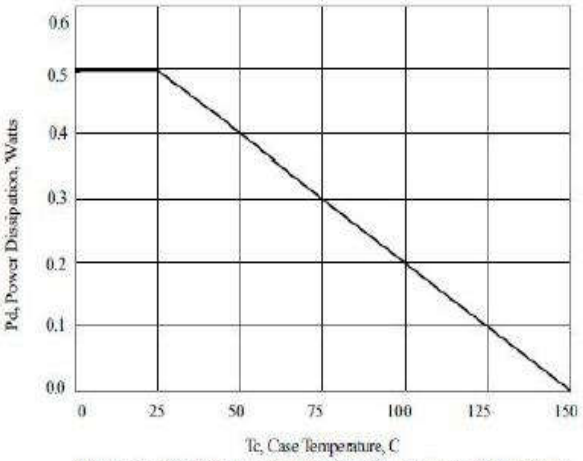


Figure 2 Maximum Power Dissipation vs Case Temperature

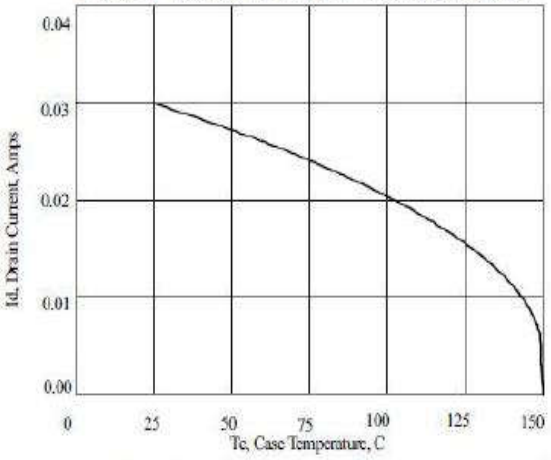


Figure 3 Maximum Continuous Drain Current vs Case Temperature

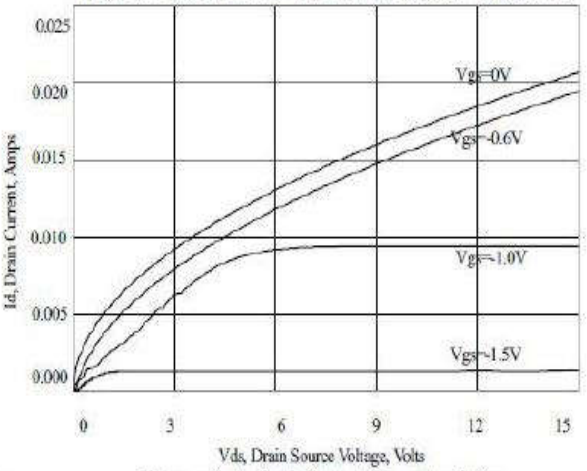


Figure 4 Typical Output Characteristics

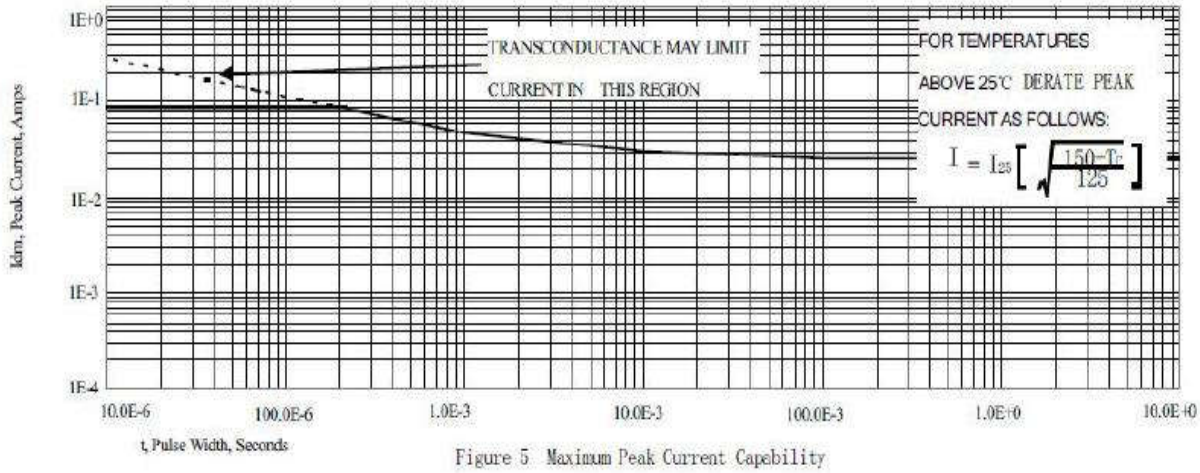


Figure 5 Maximum Peak Current Capability

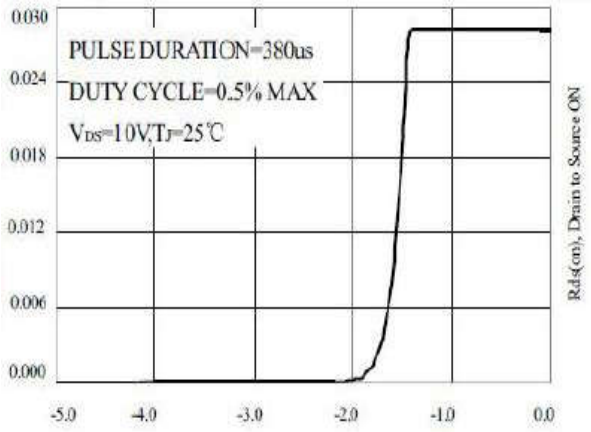


Figure 6 Typical Transfer Characteristics

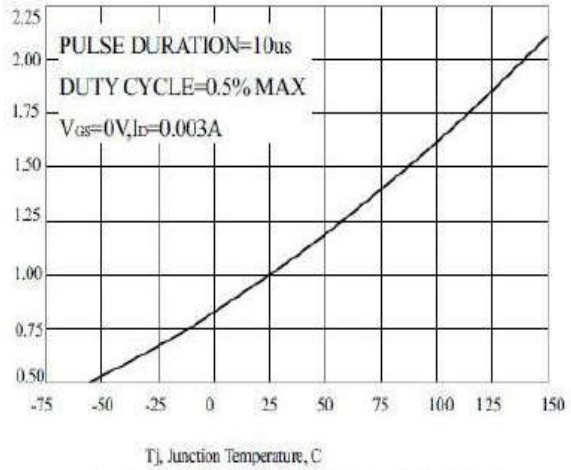


Figure 7 Typical Drain to Source ON Resistance vs Junction Temperature

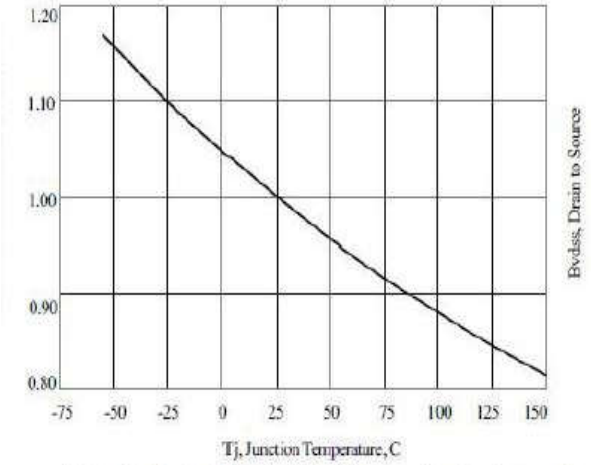


Figure 8 Typical Threshold Voltage vs Junction Temperature

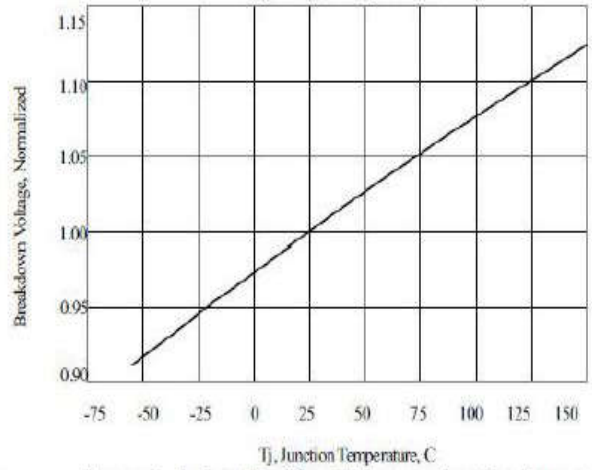


Figure 9 Typical Breakdown Voltage vs Junction Temperature

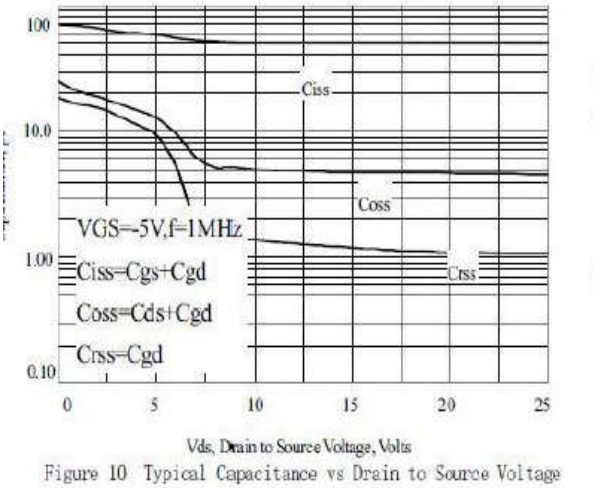


Figure 10 Typical Capacitance vs Drain to Source Voltage

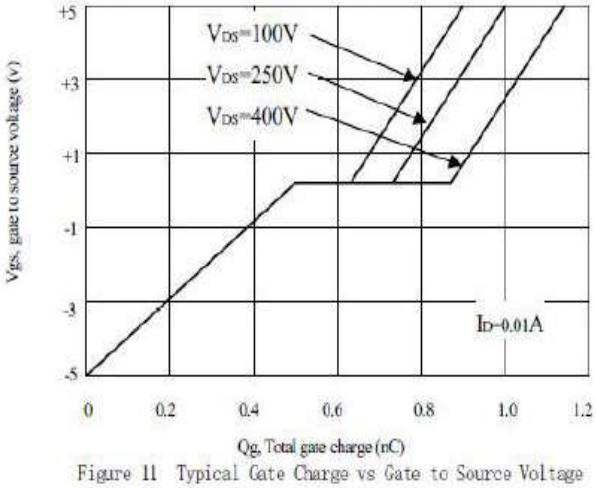


Figure 11 Typical Gate Charge vs Gate to Source Voltage

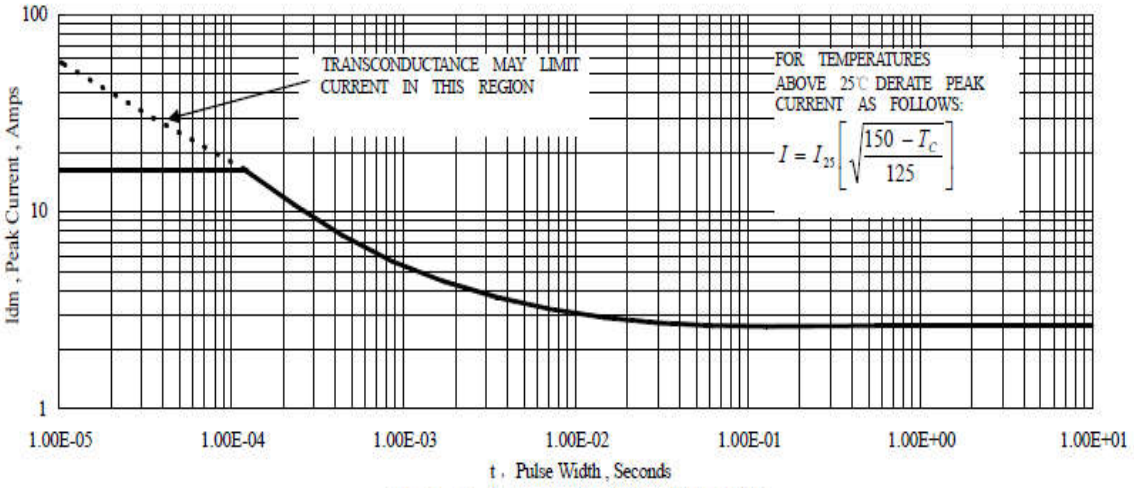


Figure 6 Maximum Peak Current Capability

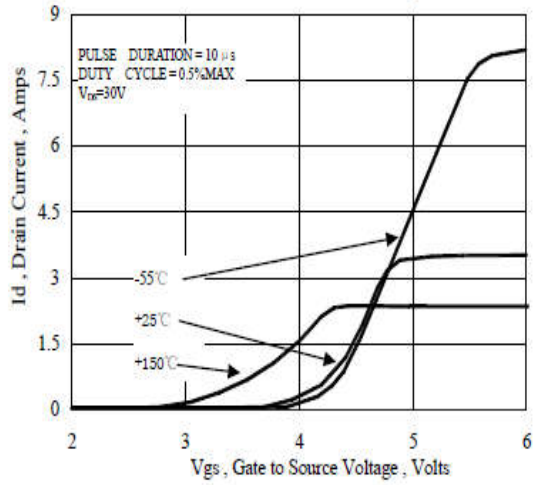


Figure 7 Typical Transfer Characteristics

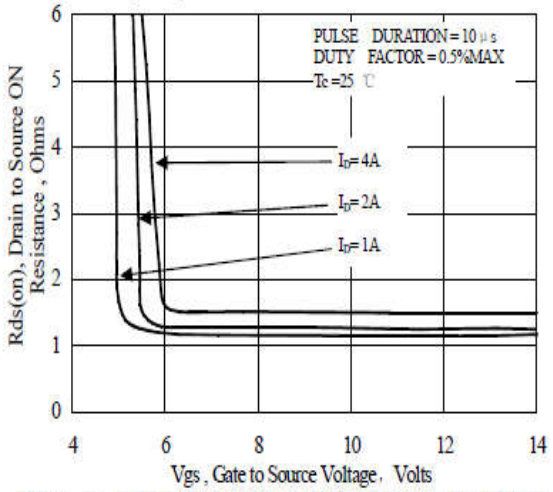


Figure 8 Typical Drain to Source ON Resistance vs Gate Voltage and Drain Current

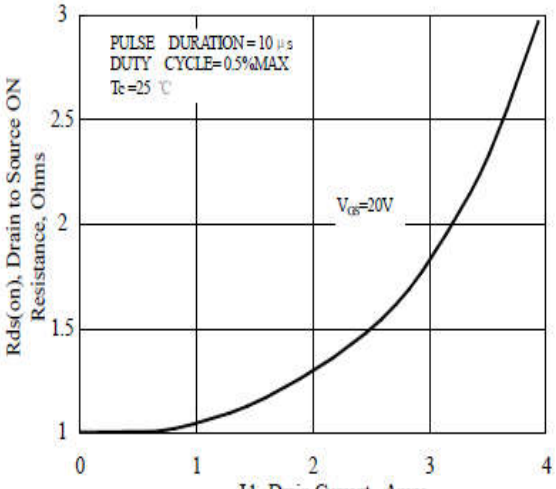


Figure 9 Typical Drain to Source ON Resistance vs Drain Current

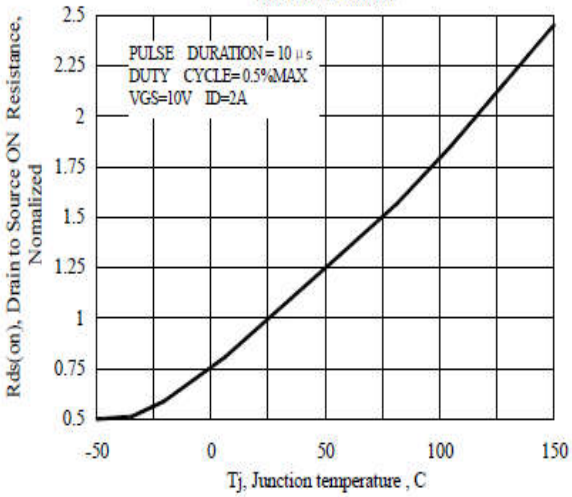


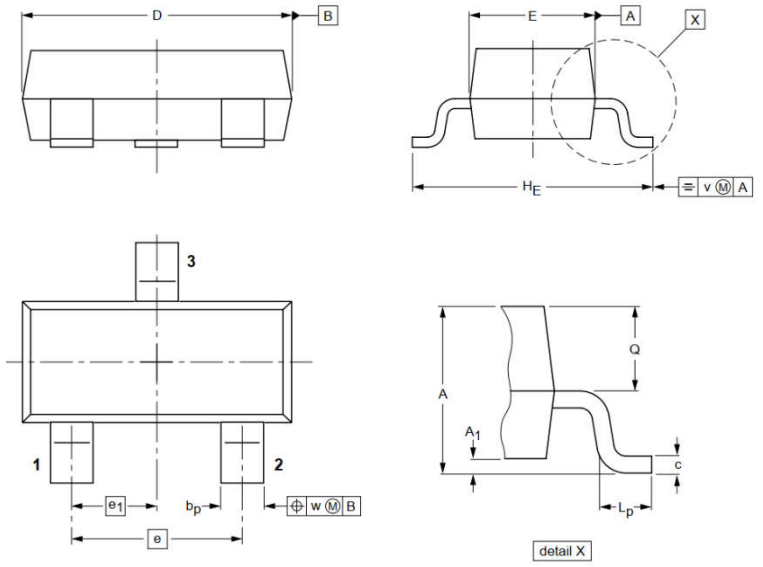
Figure 10 Typical Drian to Source on Resistance vs Junction Temperature

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

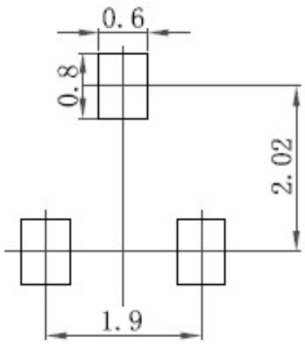
Package Dimensions

SOT-23



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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