

Enhancement Mode N-Channel Power MOSFET

PRIMARY CHARACTERISTICS

BV_{DSS}	$R_{DS(ON)MAX}$	I_D
100V	140m Ω @ $V_{GS}=10V$	6
	140m Ω @ $V_{GS}=10V$	

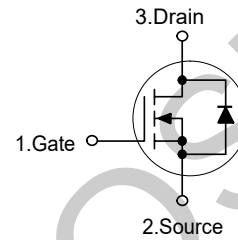
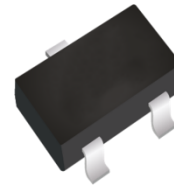
Features

- N-Channel Enhancement Mode MOSFET
- 100V / 6A, $R_{DS(on)} < 140m \Omega$ @ $V_{GS}=10V$
- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- RoHS compliant

Mechanical Data

- Package: SOT-23-3
- Pin: 1-Gate, 2-Source, 3-Drain
- Surface mount package

SOT-23



Schematic Diagram

Applications

- Power switching application
- Uninterruptible power supply
- Load switch
- DC-DC converter

Ordering Information

Orderable Part Number	Package Type	Device Marking	Form	Quantity (pcs)
DC06N10SC	SOT-23	-	7" Tape&Reel	3,000

Maximum Ratings (@ $T_A = 25^\circ C$, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($V_{GS} = 4.5V$) ⁽¹⁾	I_D	6	A
Pulsed Drain Current ⁽²⁾	I_{DM}	20	A
Power Dissipation	P_D	1.2	W
Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^\circ C$

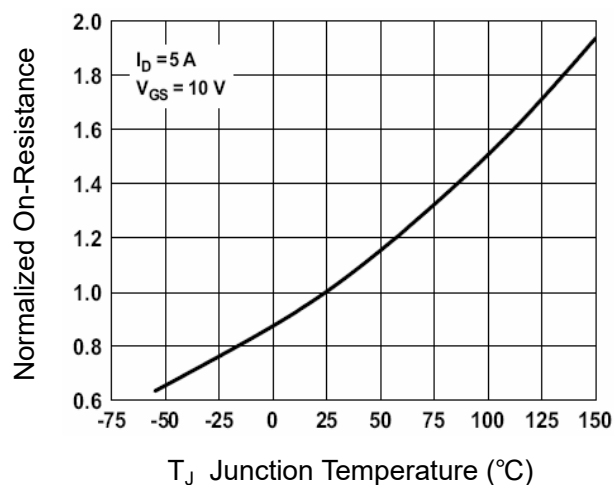
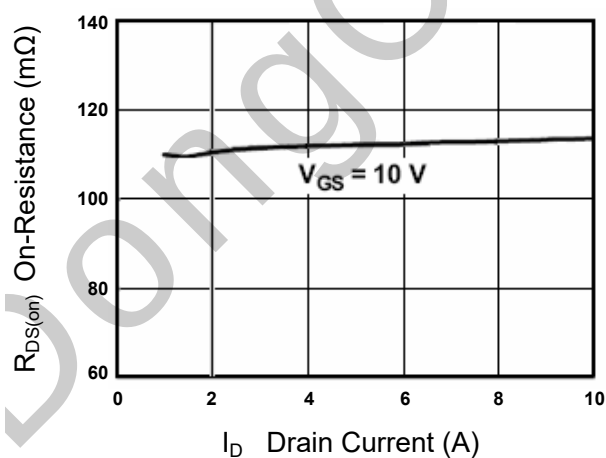
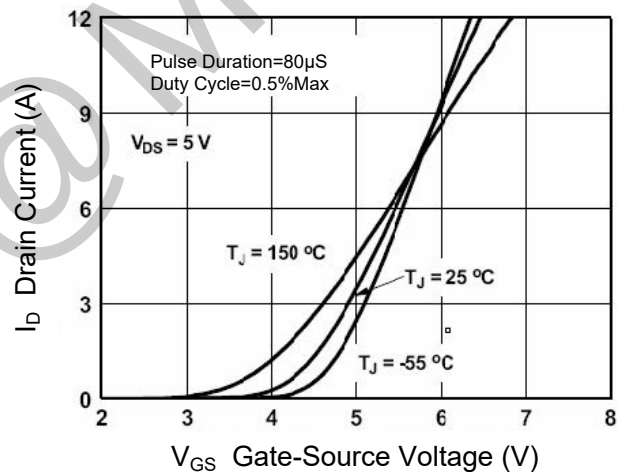
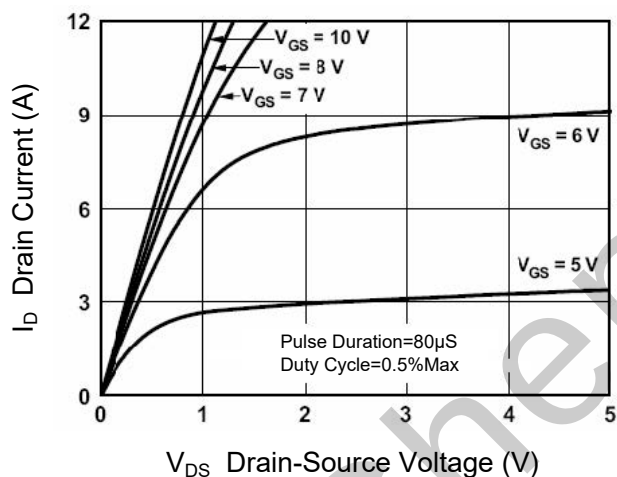
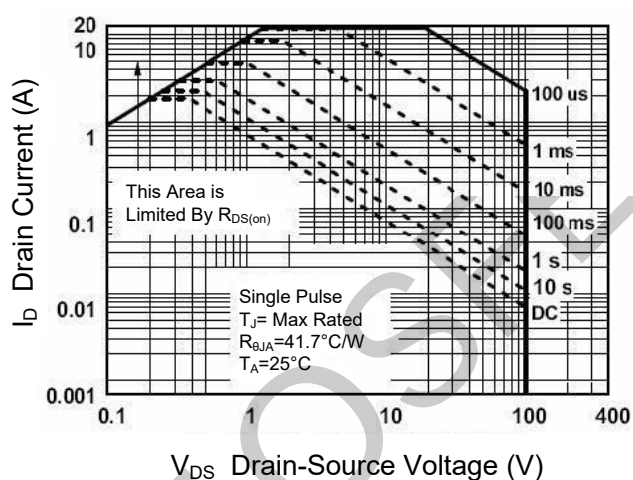
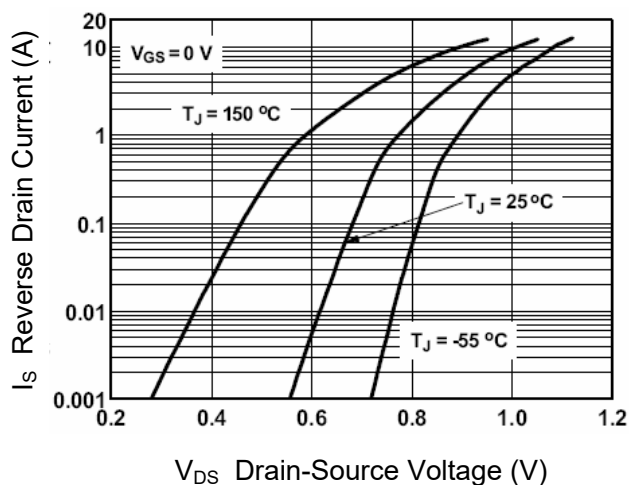
Thermal Characteristics

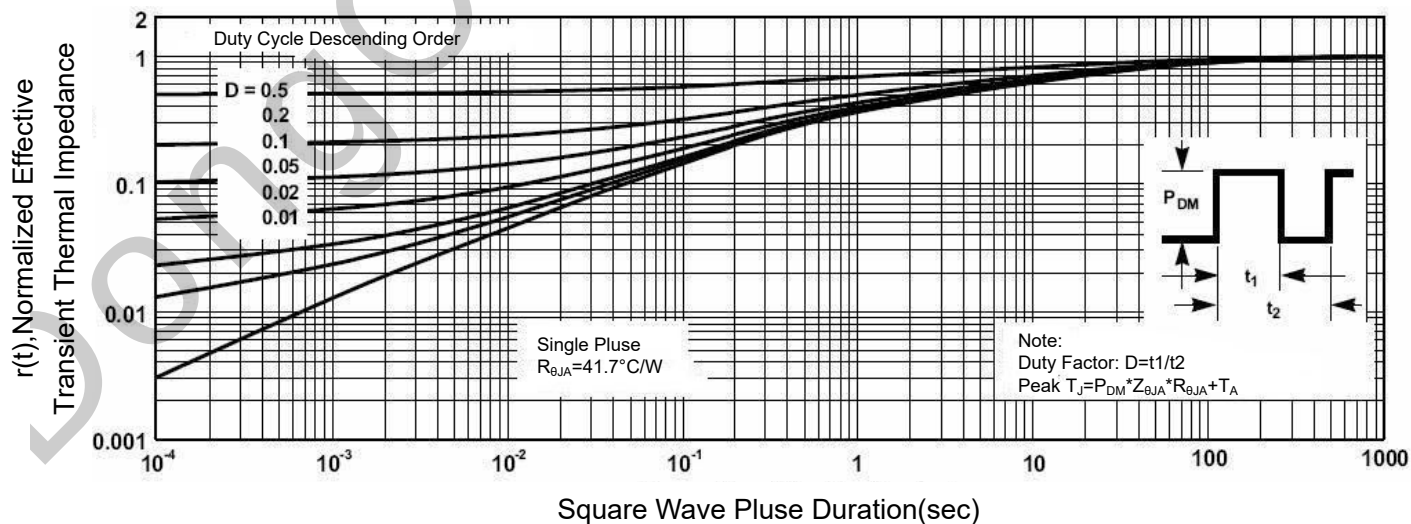
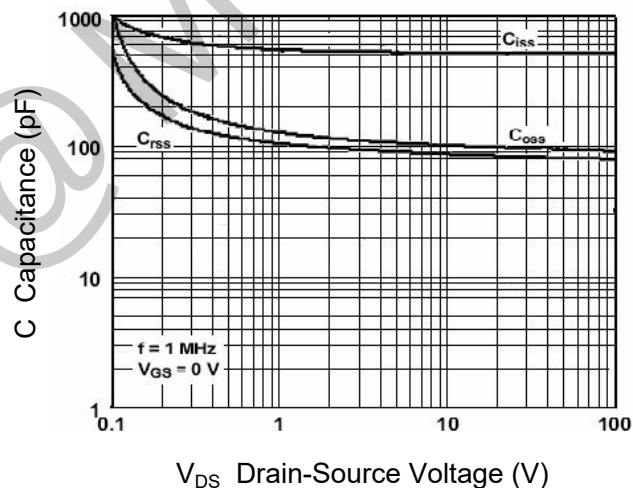
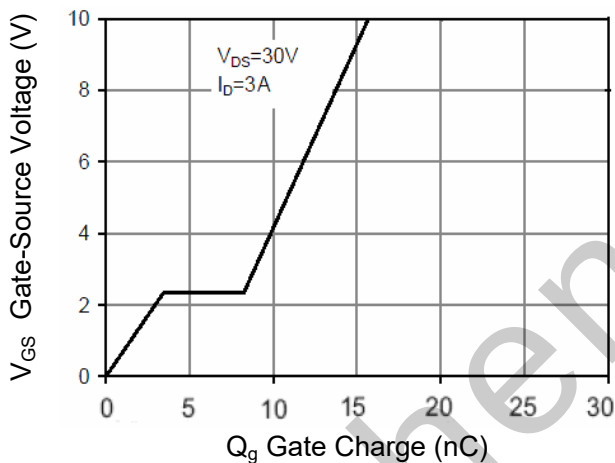
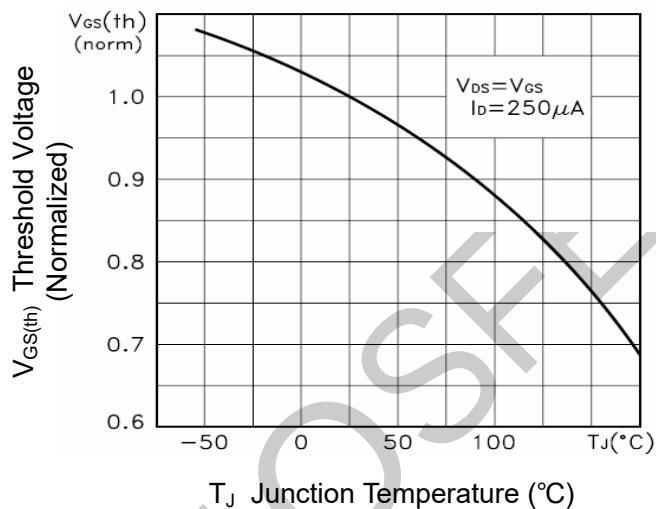
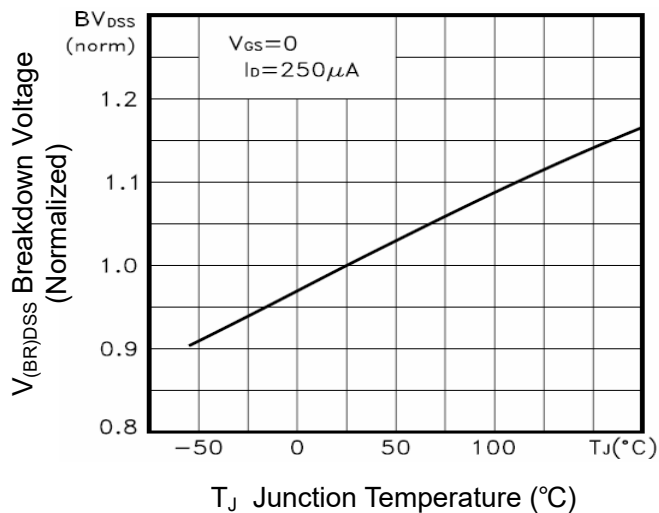
Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Ambient ⁽³⁾	$R_{\theta JA}$	-	-	$^\circ C/W$

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics ⁽⁴⁾						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	VGS=0V, ID=250μA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	VDS=100V, VGS = 0V,TJ=25°C	-	-	1	μA
Gate-Source Leakage Current	I _{GSS}	VGS=±20V, VDS = 0V	-	-	100	nA
On Characteristics ⁽⁴⁾						
Gate Threshold Voltage	V _{GS(th)}	VDS=VGS, ID=250μA	1.2	-	2.5	V
		VGS=10V, ID=5A	-	110	140	mΩ
Forward Transconductance	g _{fs}	VDS=5V, ID=2.9A	-	8	-	S
Diodes Forward Voltage	V _{SD}	IS=6A, VGS=0V	-	-	1.2	V
Dynamic Characteristics ⁽⁴⁾						
Input Capacitance	C _{iss}	VDS=25V, VGS=0V, f=1MHz	-	690	-	pF
Output Capacitance	C _{oss}		-	120	-	pF
Reverse Transfer Capacitance	C _{rss}		-	90	-	pF
Switching Characteristics ⁽⁵⁾						
Turn-On DelayTime	t _{d(on)}	VGS=10V, VDD=30V, ID=2A, RGEN=2.5Ω	-	11	-	ns
Rise Time	t _r		-	7.4	-	ns
Turn-Off DelayTime	t _{d(off)}		-	35	-	ns
Fall Time	t _f		-	9.1	-	ns
Gate Charge Characteristics ⁽⁵⁾						
Total Gate Charge	Q _g	VDS=30V,ID=3A, VGS=10V	-	15.5	-	nC
Gate-Source Charge	Q _{gs}		-	3.2	-	nC
Gate-Drain Charge	Q _{gd}		-	4.7	-	nC
Drain-Source Diode Characteristics ⁽⁵⁾						
Diode Forward Current	I _s	TA = 25°C	-	-	6	A
Drain to Source Diode Forward Voltage	V _{SD}	VGS=0V	-	-	1.2	V
Notes: 1. This current is chip limited, which is calculated based on Rthja. 2. This current is calculated on single pulse with 10μs Single Pulse . 3. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area. 4. Short duration pulse test used to minimize self-heating effect. 5. Defined by design, not subject to production.						

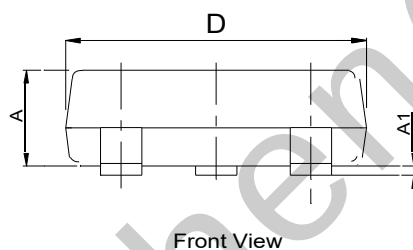
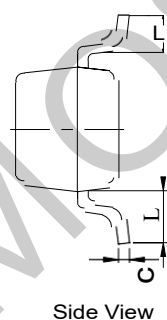
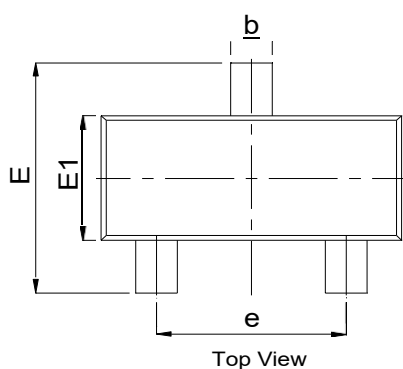
Typical Characteristic Curves





Outline Drawing

SOT-23

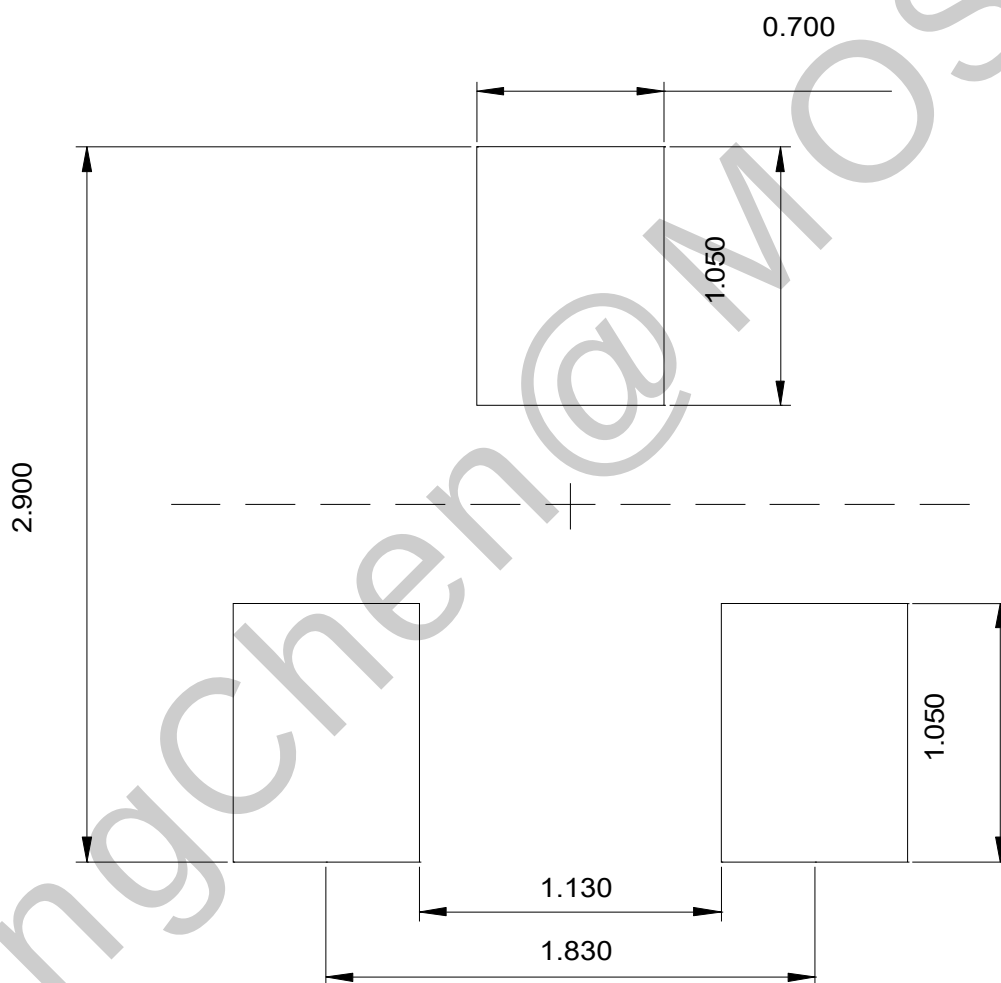


DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0.00	-	0.10
D	2.80	2.90	3.00
E	2.30	2.40	2.50
E1	1.20	1.30	1.40
L	0.45	0.55	0.65
L1	0.20	-	0.55
b	0.30	0.40	0.50
c	-	0.10	0.15
e	-	1.90	-

Dimensions in inches and (millimeters)

Suggested Soldering Pad Layout

SOT-23



Dimensions in inches and (millimeters)

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