Descriptions

This 150V 123A N-channel mosfet in a TO-220 plastic package.

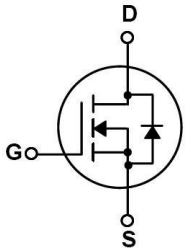
Features

- VDS=150V
- ID=123A;VGS=±20V
- RDS(on)@10V≤6.2mΩ(Type.5.8mΩ)
- Halogen-free product

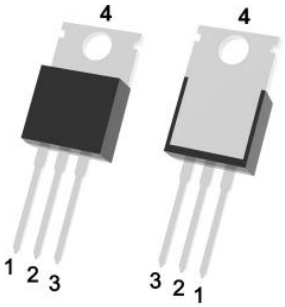
Applications

- Telecom
- Industrial Power Supply
- Load switch

Equivalent Circuit



Pinning



PIN1：G　　PIN 2、4：D　　PIN 3：S

Marking

See Marking Instructions

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	150	V
Drain Current		I_D(Tc=25℃)	123	A
Pulsed Drain Current		I_{DM}	327	A
Gate-Source Voltage		V_{GS}	±20	V
Single Pulsed Avalanche Energy L=0.5mH		E_{AS}	1190	mJ
Avalanche Current		I_{AS}	63	A
Total Power Dissipation		P_D(Tc=25℃)	200	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	℃
Thermal Resistance-Junction to Ambient	t≤10s	$R_{\theta JA}$	15	℃/W
	Steady-State		60	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.63	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	150	170		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=150V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		5.8	6.5	mΩ
Forward On Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Gate resistance	R_g	VGS=0V VDS=0V, f=1MHz		1.1		Ω
Input Capacitance	C_{iss}	VDS=25V VGS=0V f=1MHz		6200		pF
Output Capacitance	C_{oss}			2900		
Reverse Transfer Capacitance	C_{rss}			160		
Total Gate Charge	$Q_{g(10V)}$	VGS=10V, VDS=75V, ID=20A		85		nC
Total Gate Charge	$Q_{g(4.5V)}$			23		
Gate Source Charge	Q_{gs}			33		
Gate Drain Charge	Q_{gd}			16		

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=75V R_L=2.5Ω R_{GEN}=3Ω		27.3		ns
Turn-On Rise Time	t_r			21		
Turn-Off Delay Time	$t_{d(off)}$			50.1		
Turn-Off Fall Time	t_f			29.3		

Electrical Characteristic Curve

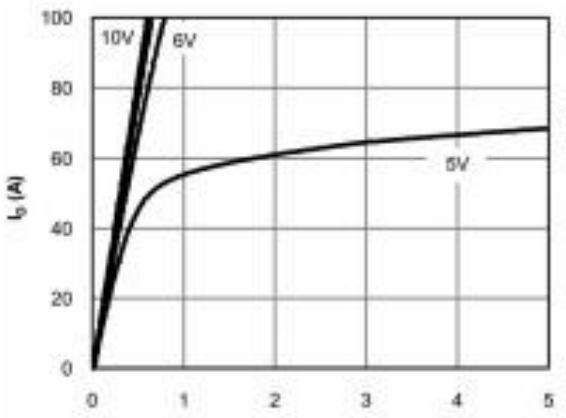


Fig 1: On-Region Characteristics

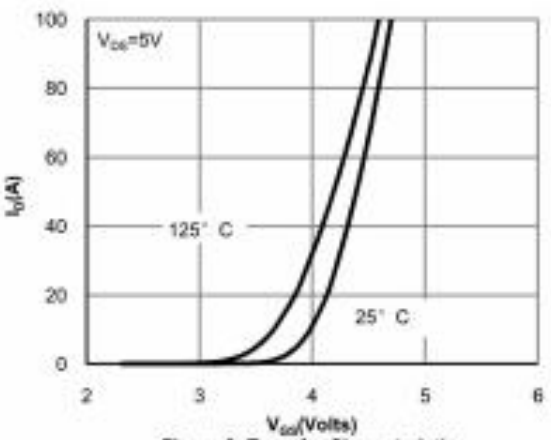


Figure 2: Transfer Characteristics

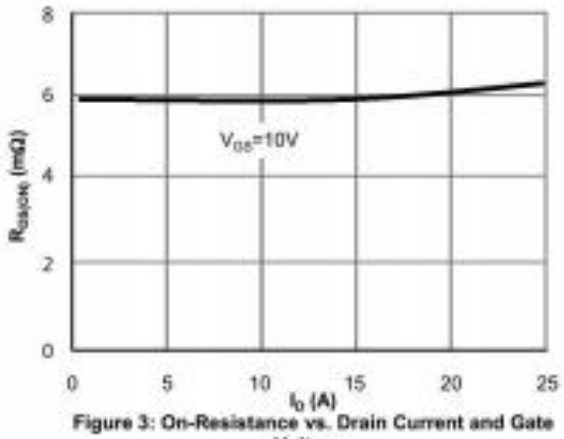


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

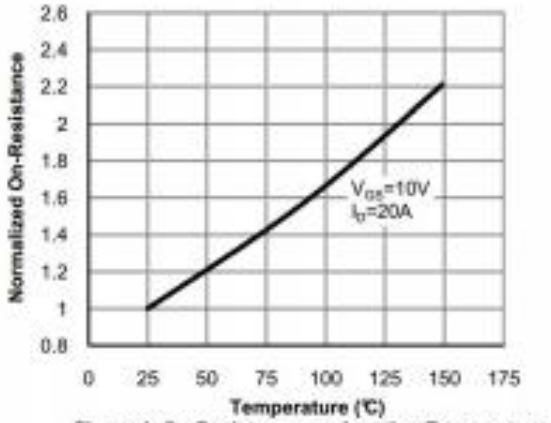


Figure 4: On-Resistance vs. Junction Temperature

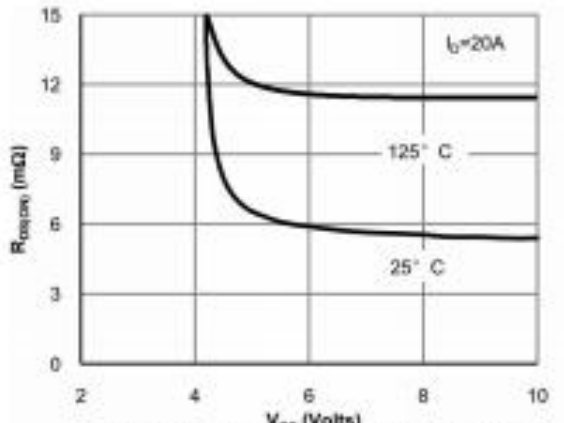


Figure 5: On-Resistance vs. Gate-Source Voltage

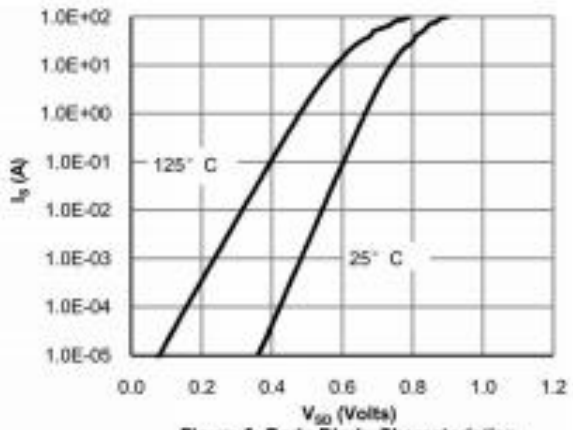


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

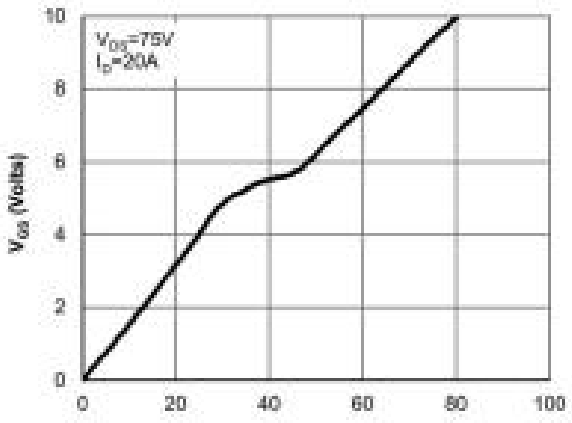


Figure 7: Gate-Charge Characteristics

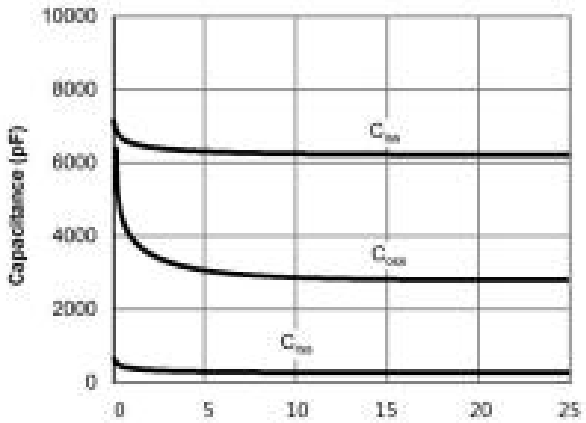


Figure 8: Capacitance Characteristics

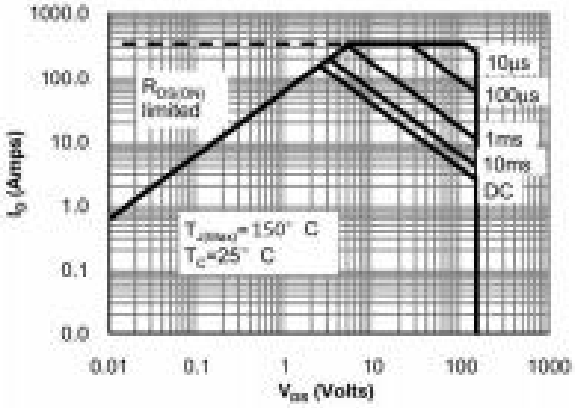


Figure 9: Maximum Forward Biased Safe Operating Area

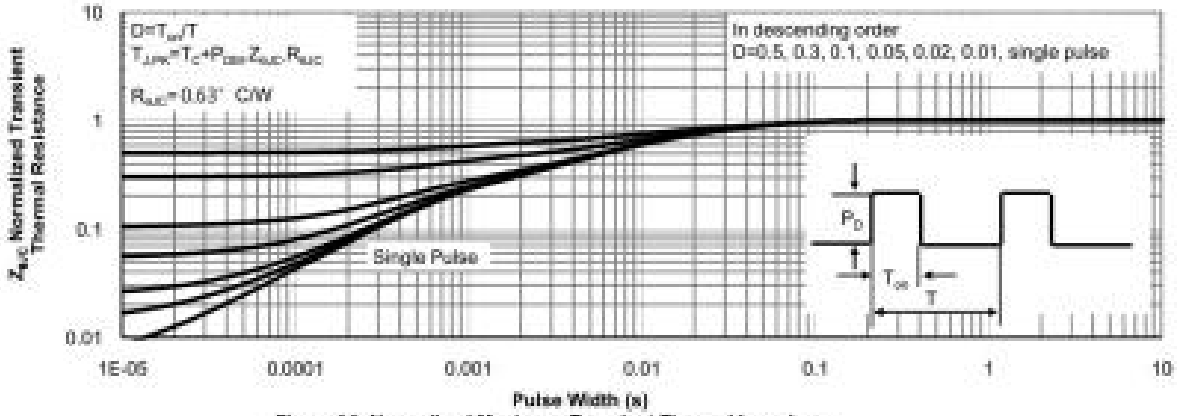
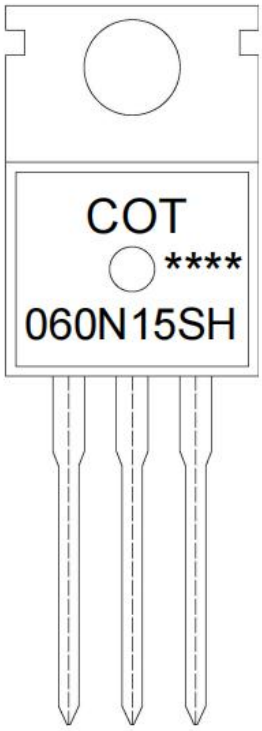


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Code

060N15SH: Product Type

****: Lot No. Code, code change with Lot No

Packaging SPEC

BULK

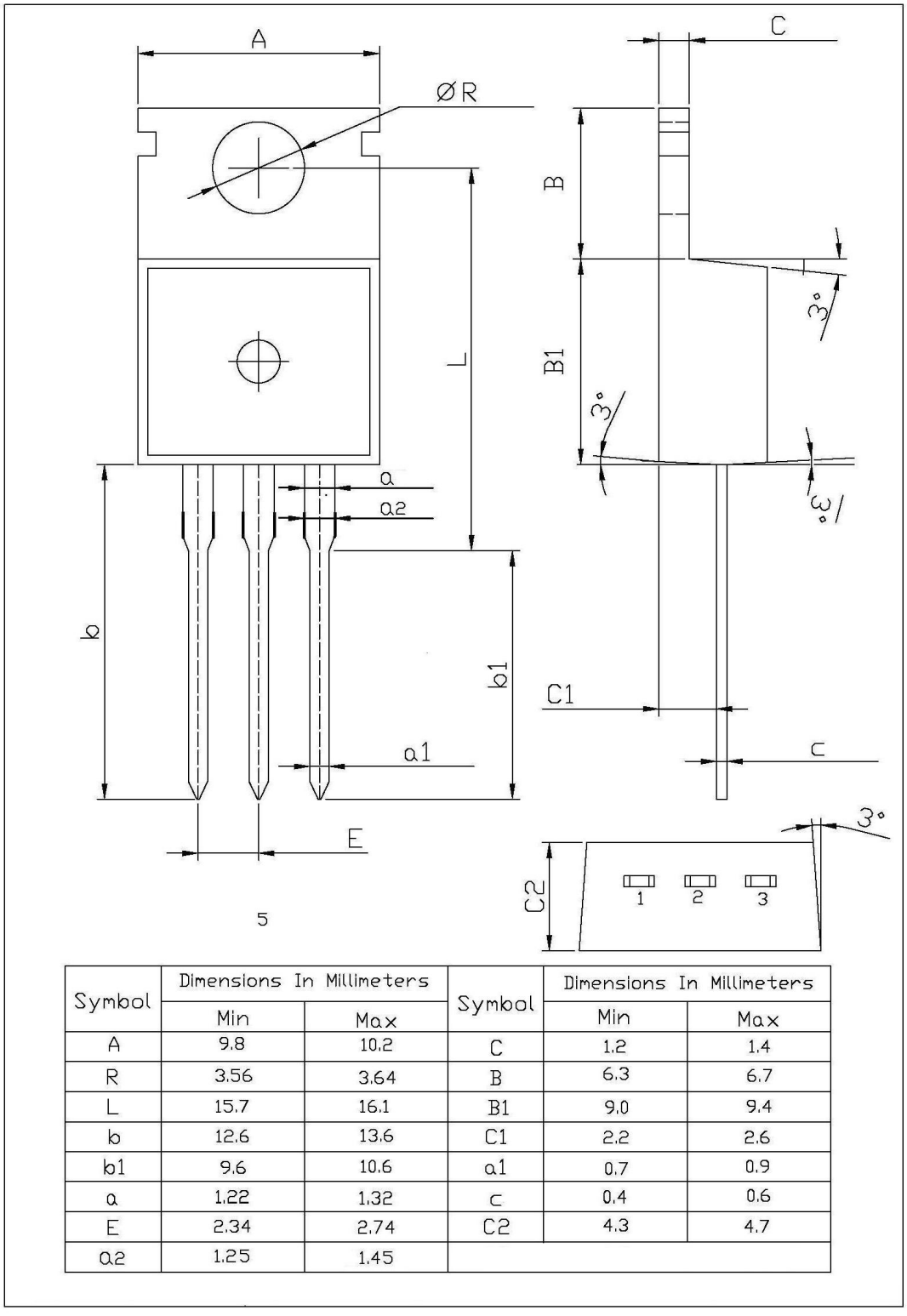
Package Type	Units					Dimension (unit：mm³)		
	Units/Bag	Bags/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Bag	Inner Box	Outer Box
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

TUBE

Package Type	Units					Dimension (unit：mm³)		
	Units/Tub	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

Package Outline Dimensions

TO-220 单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
L	15.7	16.1	B1	9.0	9.4
b	12.6	13.6	C1	2.2	2.6
b1	9.6	10.6	a1	0.7	0.9
a	1.22	1.32	c	0.4	0.6
E	2.34	2.74	C2	4.3	4.7
a2	1.25	1.45			