

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	IRFB3207Z
▶ Overseas	Part Number	IRFB3207Z
▶ Equivalent	Part Number	IRFB3207Z

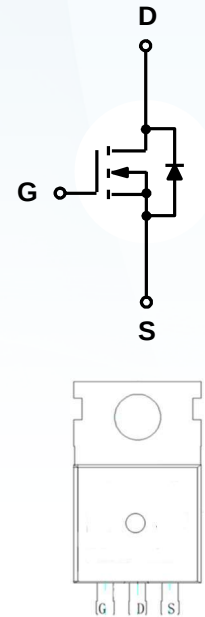
EV is the abbreviation of name EVVO

Features

- 80V,150A
 $R_{DS(ON)} < 3.0m\Omega @ V_{GS}=10V$ TYP:2.5m Ω
 $R_{DS(ON)} < 4.0m\Omega @ V_{GS}=6V$ TYP:3.5m Ω
- Surface-mounted package
- Split Gate Trench Technology

Applications

- Power appliances
- BMS appliances
- High power inverter system



Marking and pin assignment

ABSOLUTE MAXIMUM RATINGS ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^\circ\text{C}$) ^(2,3)	I_D	150	A
Pulsed Drain Current ^(1,2,3)	I_{DM}	240	A
Single Pulsed Avalanche Energy ($V_{DD}=50V, L=0.1mH$) ⁽²⁾	E_{AS}	420	mJ
Drain Power Dissipation	P_D	156	W
Thermal Resistance from Junction to Case ⁽²⁾	$R_{\theta JC}$	0.8	$^\circ\text{C/W}$
Thermal Resistance- Junction to Ambient ⁽²⁾	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

Notes:

1. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$
2. Surface Mounted on n 1 in2 pad area, $t \leq 10$ sec.
3. Limited by bonding wire

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25°C unless otherwise noted)

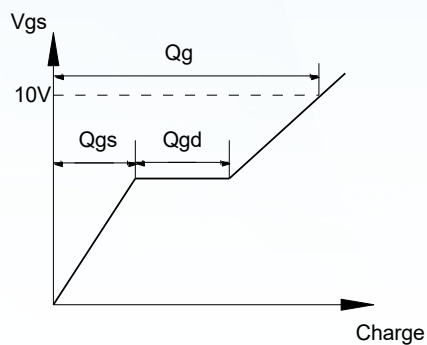
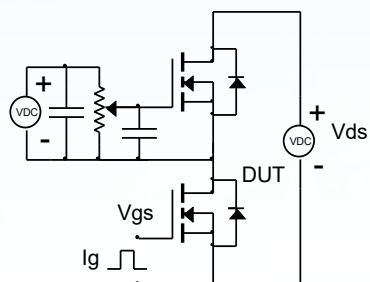
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	80	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =64V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	-	4.0	V
Drain-source on-resistance ^(a)	R _{DS(on)}	V _{GS} =10V, I _D =30A	-	2.5	3.0	mΩ
		V _{GS} =6V, I _D =20A		3.5	4.0	mΩ
Dynamic characteristics						
Input Capacitance	C _{iSS}	V _{DS} =40V, V _{GS} =0V, f =1.0MHz	-	5591	-	pF
Output Capacitance	C _{oSS}		-	744	-	
Reverse Transfer Capacitance	C _{rSS}		-	75	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =40V, I _D =30A, R _G =4.5Ω, R _L =1.3Ω,V _G =10V	-	23	-	ns
Turn-on rise time	t _r		-	65	-	
Turn-off delay time	t _{d(off)}		-	71	-	
Turn-off fall time	t _f		-	73	-	
Total Gate Charge	Q _g	V _{DS} =40V, I _D =30A, V _{GS} =10V	-	101	-	nC
Gate-Source Charge	Q _{gs}		-	28	-	
Gate-Drain Charge	Q _{gd}		-	25	-	
Source-Drain Diode characteristics						
Diode Forward voltage ^(a)	V _{SD}	T _J =25℃, V _{GS} =0V, I _S =30A	-	-	1.3	V
Diode Forward current	I _S	T _C =25℃	-	-	150	A
Body Diode Reverse Recovery Time	t _{rr}	T _J =25℃, IF=30A,di/dt=100A/us		62		ns
Body Diode Reverse Recovery Charge	Q _{rr}	T _J =25℃, IF=30A,di/dt=100A/us		83		uc

Notes:

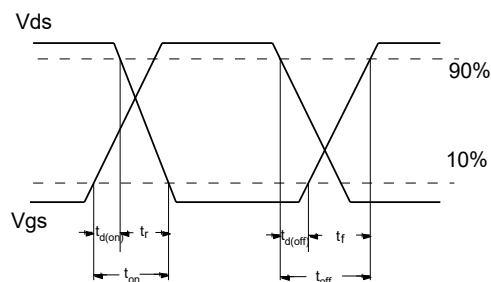
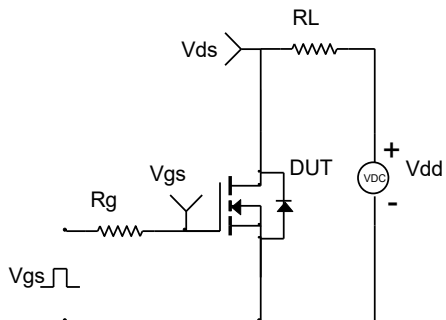
- a) Pulse width ≤ 300 μs, duty cycle ≤ 2%
 b) Guaranteed by design, not subject to production testing

Test Circuit

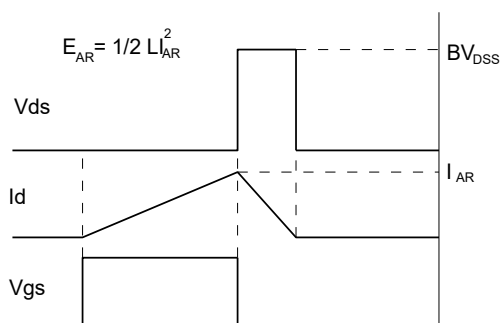
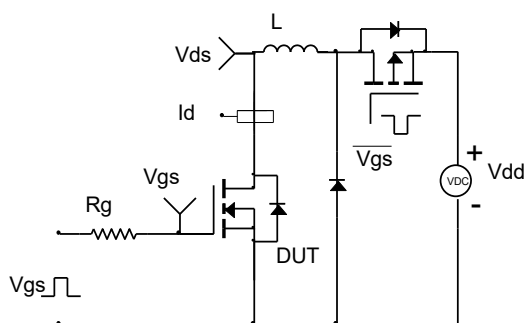
Gate Charge Test Circuit & Waveform



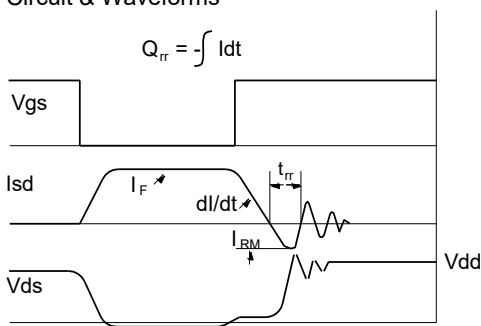
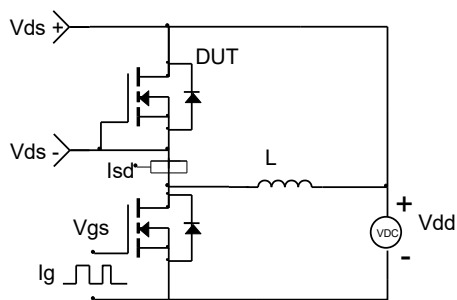
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

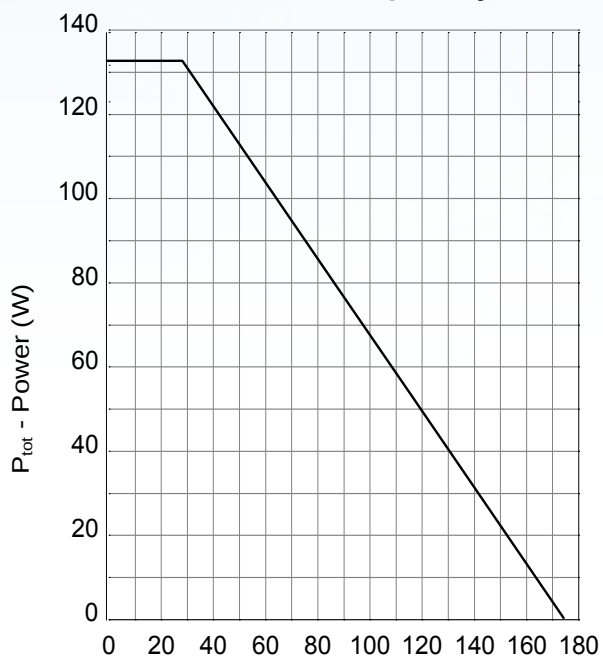


Diode Recovery Test Circuit & Waveforms

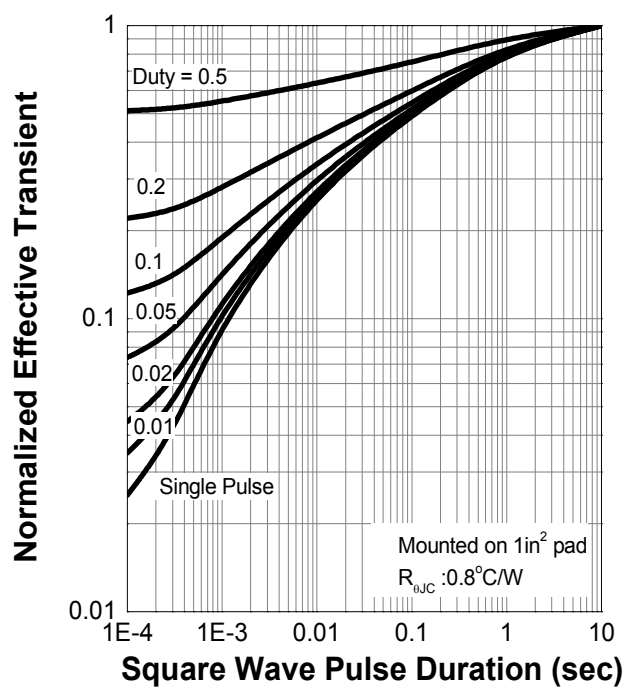
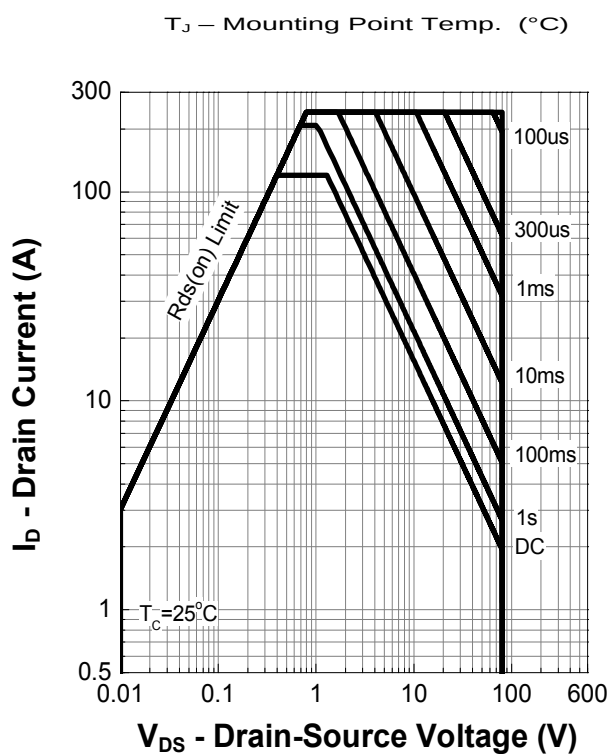
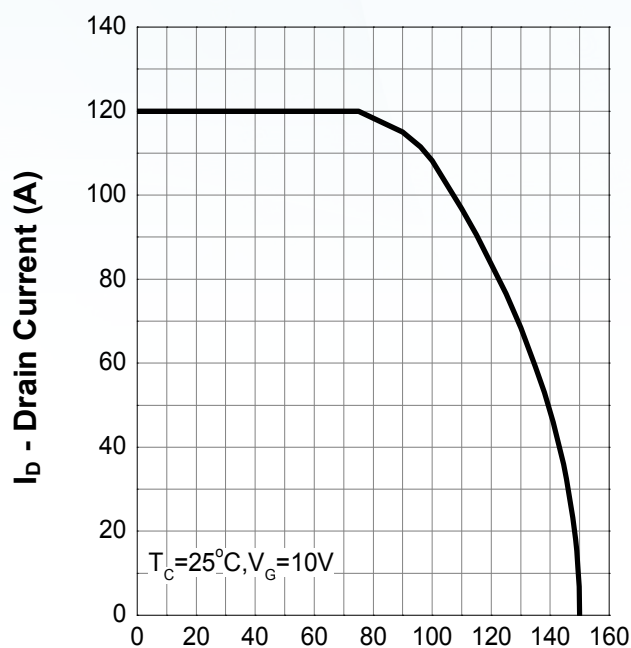


Typical Characteristics (cont.)

Power Capability

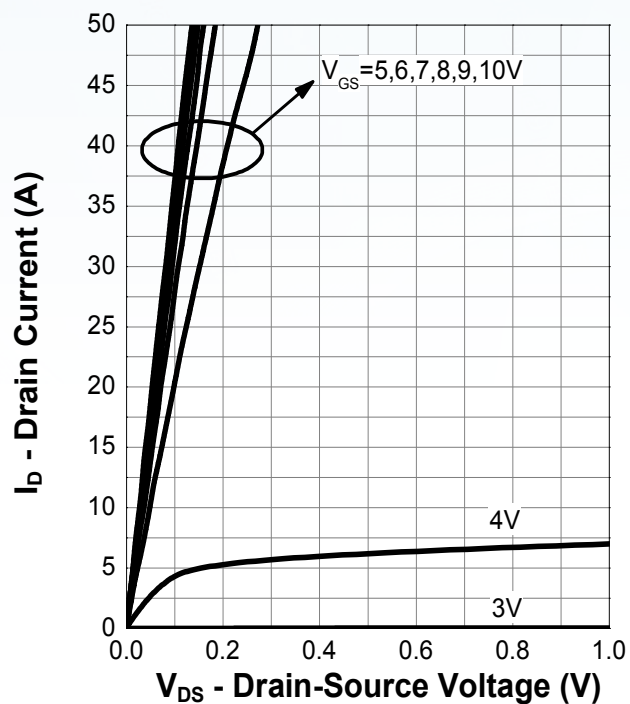


Current Capability

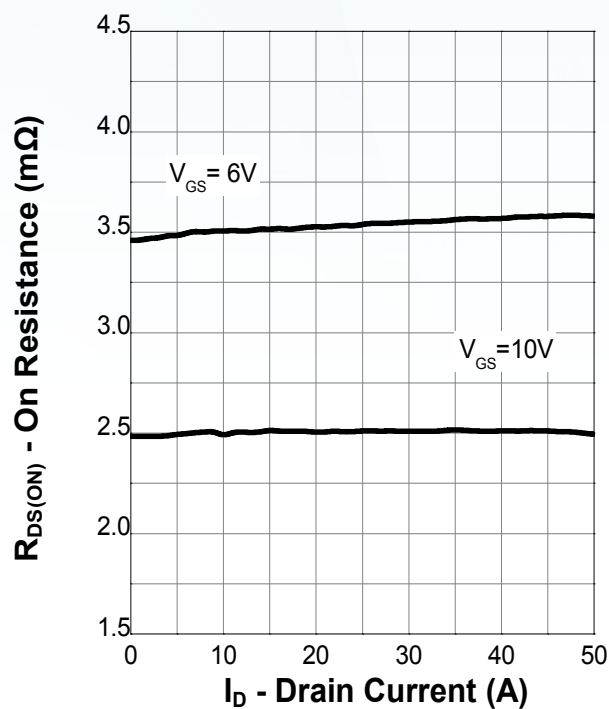


Typical Characteristics (cont.)

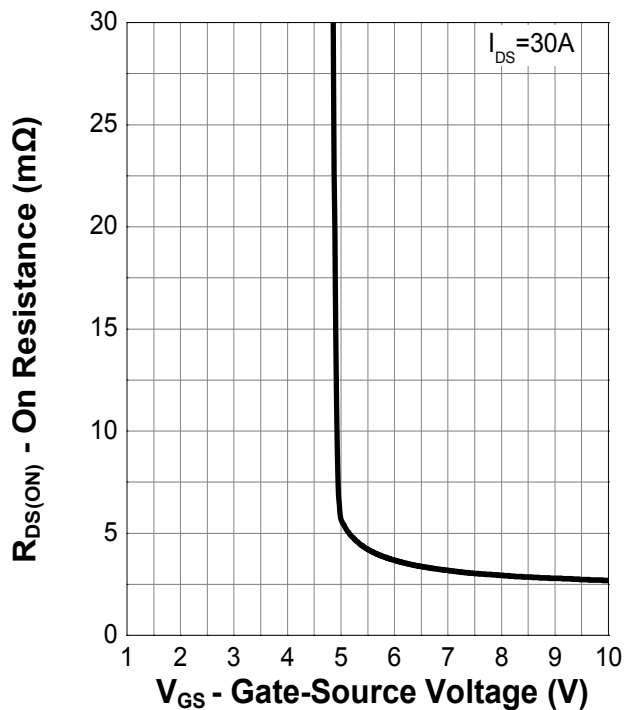
Output Characteristics



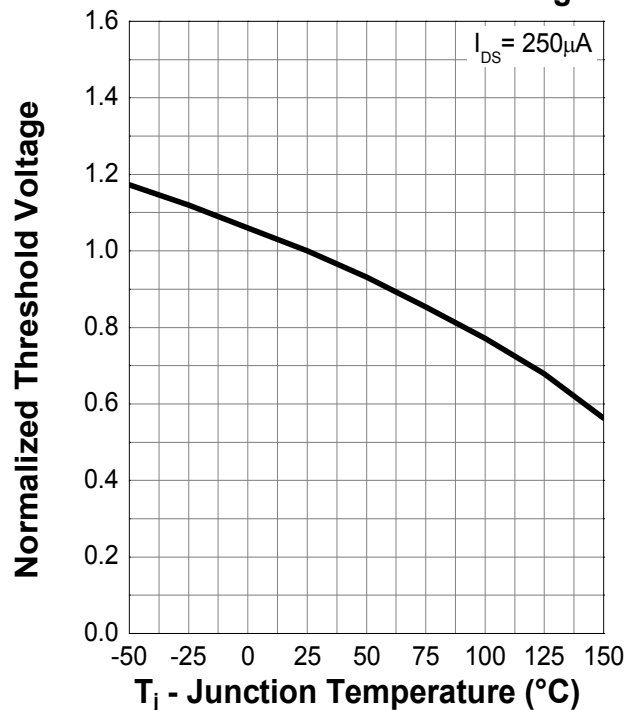
On Resistance



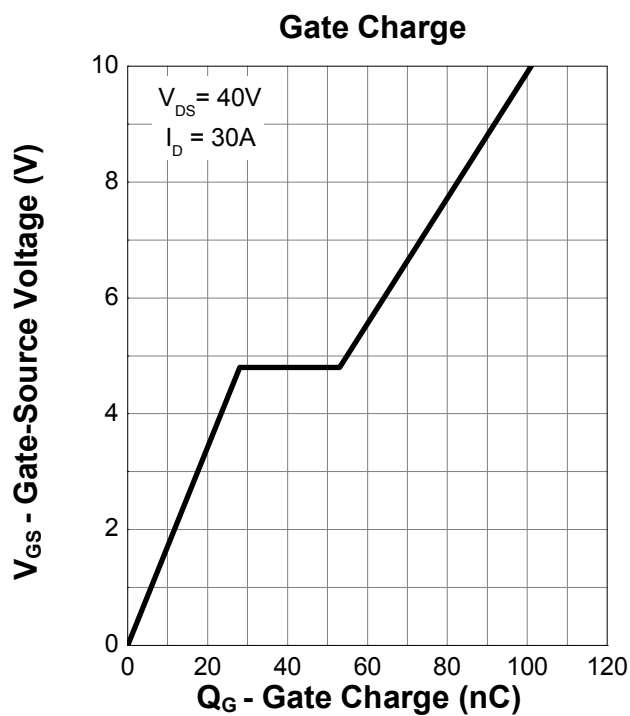
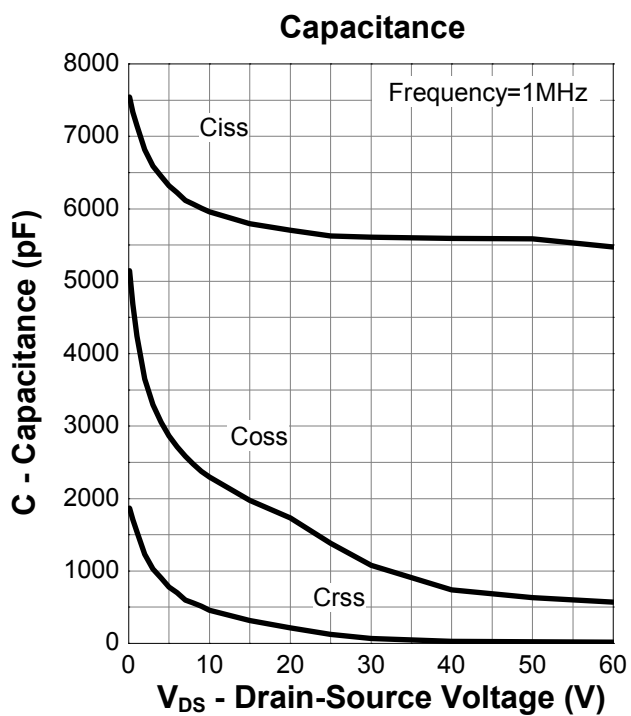
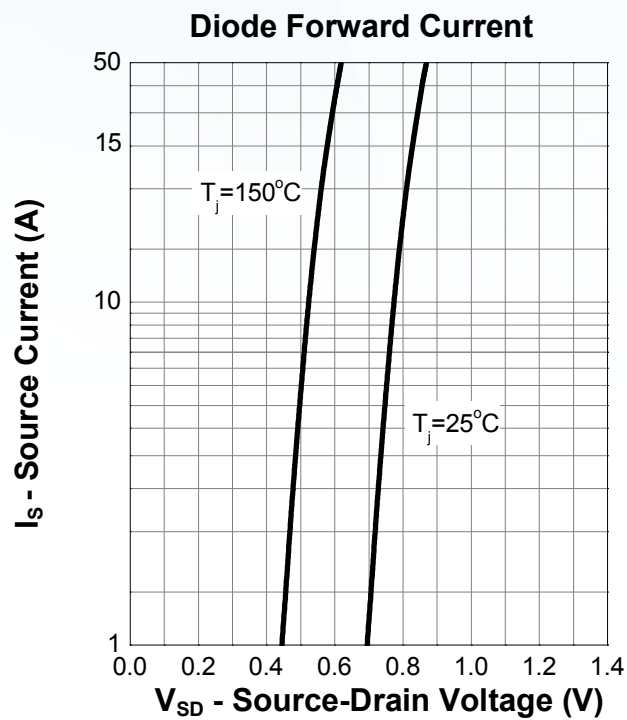
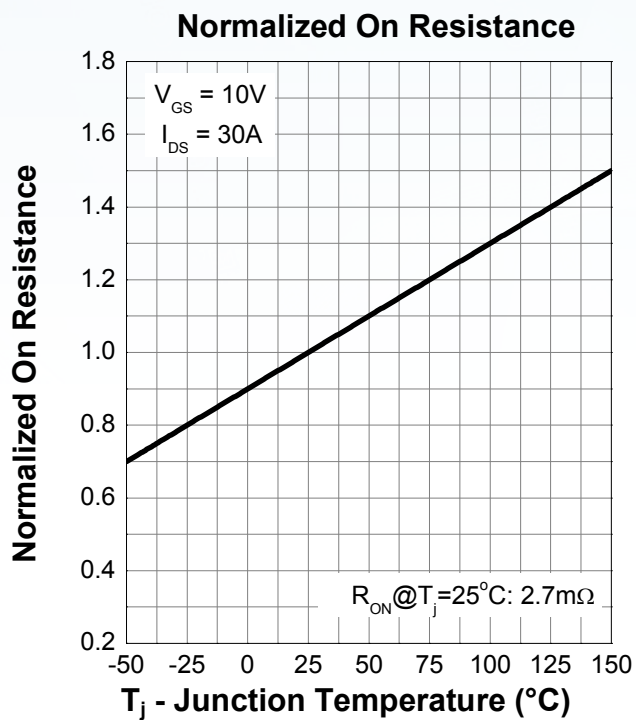
Transfer Characteristics



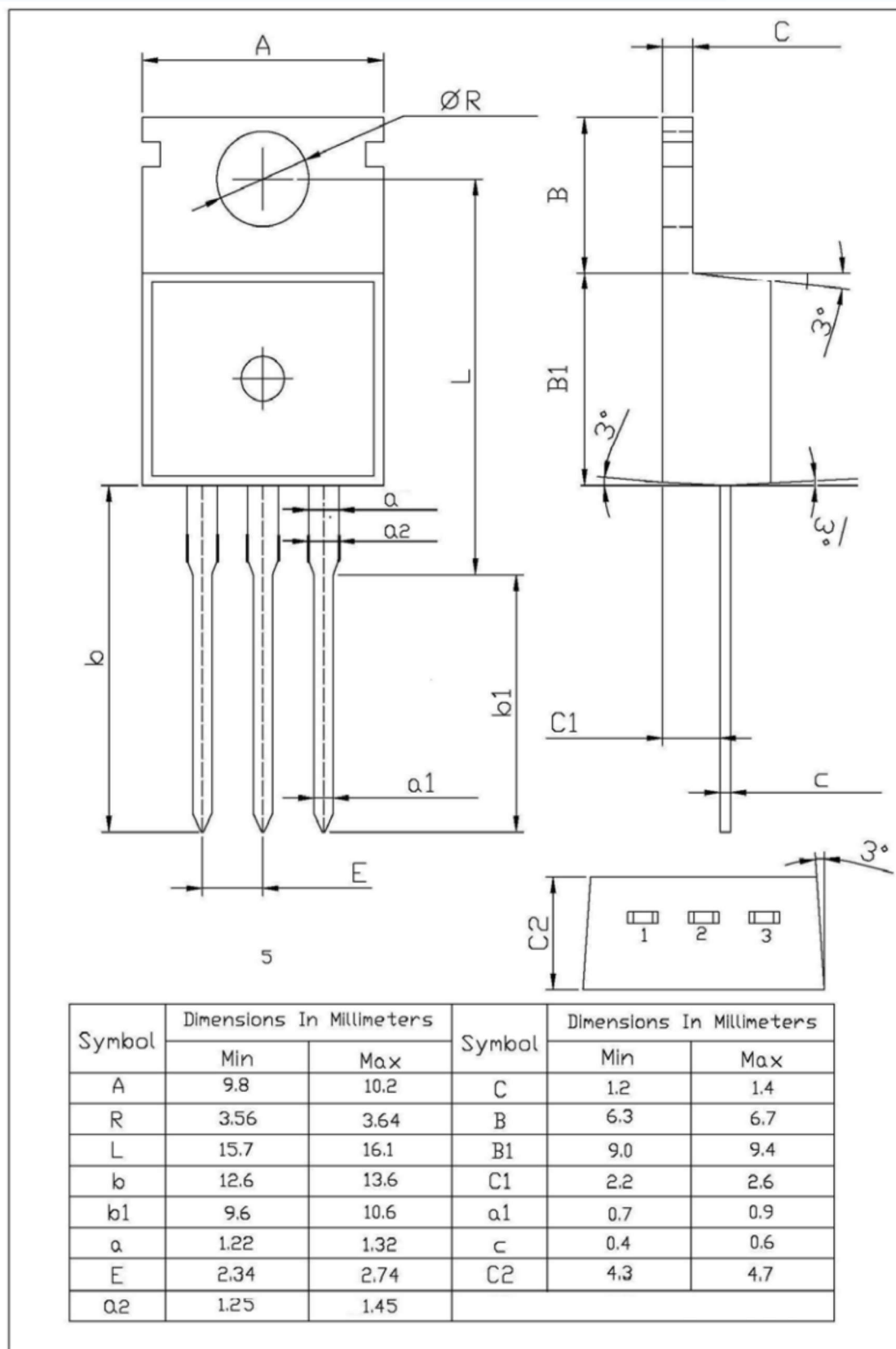
Normalized Threshold Voltage



Typical Characteristics (cont.)



TO-220 Package Dimensions



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