

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain Source Voltage	V_{DS}	35	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current @ $T_J = 150^\circ\text{C}$ $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_D	1.4 1	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	3	A
Maximum Power Dissipation @ $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	P_D	6.25 2.5	W
Thermal Resistance Junction To Ambient	$R_{\theta JA}$	170	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction To Case	$R_{\theta JC}$	20	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

Note 1: Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit	
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage $V_{GS} = 0\text{V}, I_D = 10\mu\text{A}$	V_{DSS}	35	75	-	V	
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}, I_D = 1\text{mA}$	$V_{GS(th)}$	0.8	1.7	2	V	
Gate Body Leakage $V_{GS} = \pm 15\text{V}, V_{DS} = 0\text{V}$ $V_{GS} = \pm 15\text{V}, V_{DS} = 0\text{V}, T_C = +125^\circ\text{C}$	I_{GSS}	-	-	±100 ±500	nA	
Zero Gate Voltage Drain Current $V_{GS} = 0\text{V}, V_{DS} = 35\text{V}$ $V_{GS} = 0\text{V}, V_{DS} = 28\text{V}, T_C = +125^\circ\text{C}$	I_{DSS}	-	-	10 500	μA	
On-Site Drain Current $V_{GS} = 10\text{V}, V_{DS} = 10\text{V}$	$I_{D(ON)}$	1.5	3	-	A	
Drain-Source On-State Resistance $V_{GS} = 5\text{V}, I_D = 0.3\text{A}$ $V_{GS} = 10\text{V}, I_D = 1\text{A}$ $V_{GS} = 10\text{V}, I_D = 1\text{A}, T_C = 125^\circ\text{C}$	$r_{DS(on)}$	-	2 1.3 2.4	5 1.8 3.6	Ω	
Forward Transconductance ⁽²⁾ $V_{DS} = 7.5\text{V}, I_D = 0.525\text{A}$	g_{fs}	170	350	-	mS	
Diode Forward Voltage $I_S = 0.99\text{A}, V_{GS} = 0\text{V}$	V_{SD}	-	0.8	-	V	
DYNAMIC CHARACTERISTICS						
Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$	C_{iss}	-	35	50	pF
Output Capacitance		C_{oss}	-	25	40	
Reverse Transfer Capacitance		C_{rss}	-	7	10	
Drain-Source Capacitance		C_{ds}	-	30	40	

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

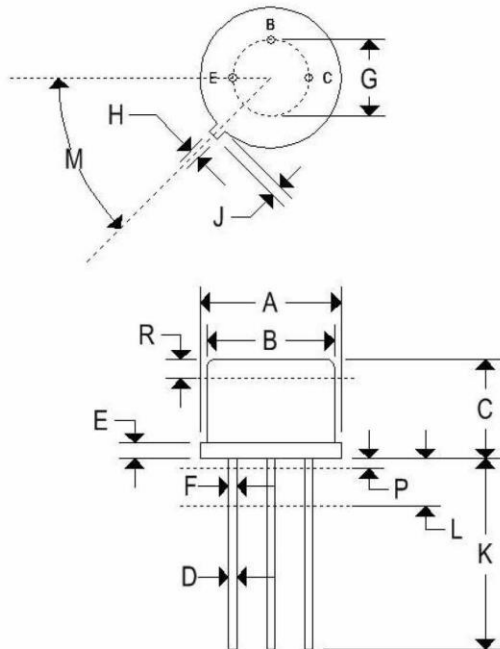
Characteristics	Symbol	Min	Max	Unit
SWITCHING CHARACTERISTICS⁽³⁾				
Turn-On Time	$t_{d(on)}$	-	8	ns
Turn-off Time			$t_{d(off)}$	
		$V_{DD} = 25\text{V}, R_L = 23\Omega, I_D = 1\text{A},$ $V_{GEN} = 10\text{V}, R_G = 25\Omega,$		

Note 2: Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.

Note 3: Switching time is essentially independent of operating temperature.

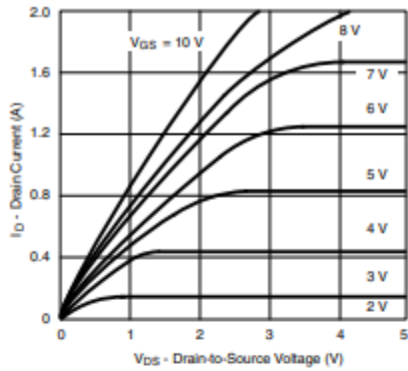
MECHANICAL CHARACTERISTICS

Case:	TO-39
Marking:	Alpha-numeric
Pin out:	See below

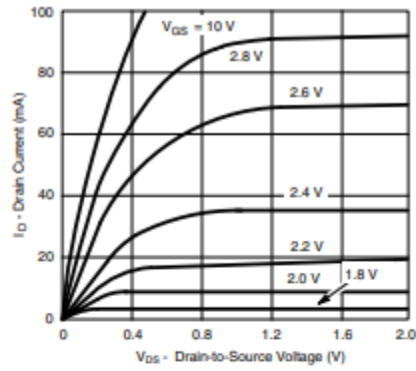


	TO-39			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.350	0.370	8.890	9.400
B	0.315	0.335	8.000	8.510
C	0.240	0.260	6.10	6.60
D	0.016	0.021	0.406	0.533
E	0.009	0.125	0.2269	3.180
F	0.016	0.019	0.406	0.533
G	0.190	0.210	4.830	5.33
H	0.028	0.034	0.711	0.864
J	0.029	0.040	0.737	1.020
K	0.500	-	12.700	-
L	0.250	-	6.350	-
M	45° NOM		45° NOM	
P	-	0.050	-	1.270
Q	90° NOM		90° NOM	
R	0.100	-	2.540	-

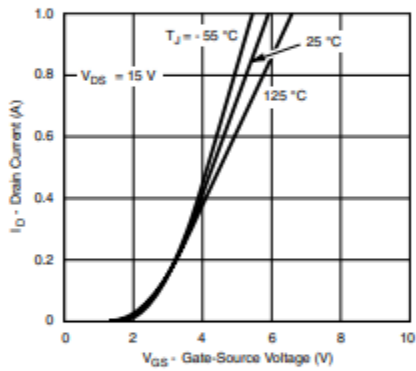
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



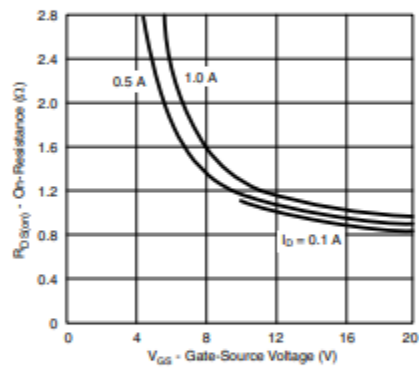
Ohmic Region Characteristics



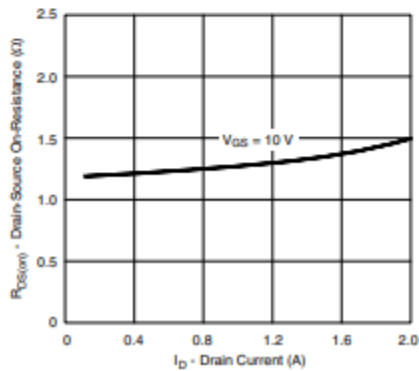
Output Characteristics for Low Gate Drive



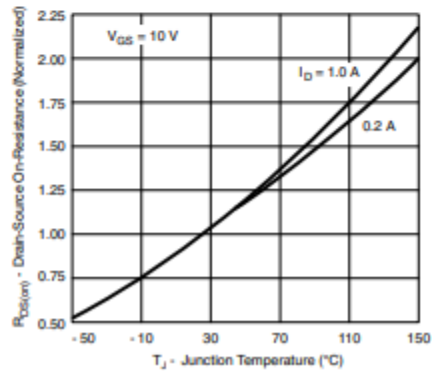
Transfer Characteristics



On-Resistance vs. Gate-to-Source Voltage

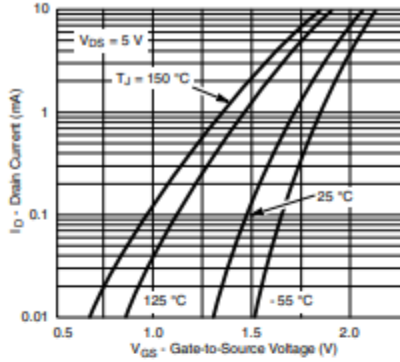


On-Resistance vs. Drain Current

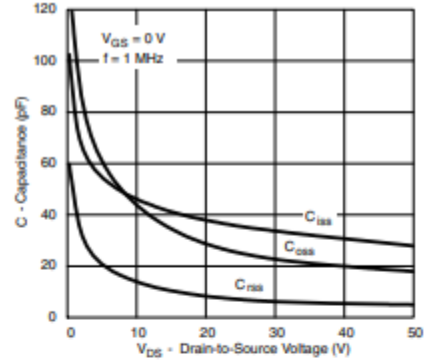


Normalized On-Resistance vs. Junction Temperature

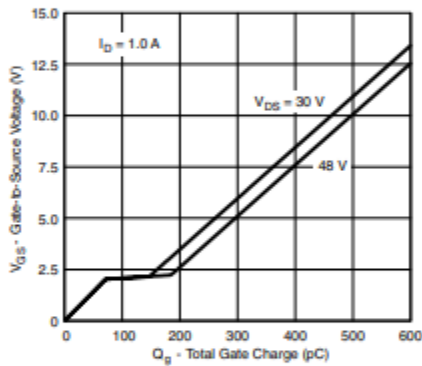
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



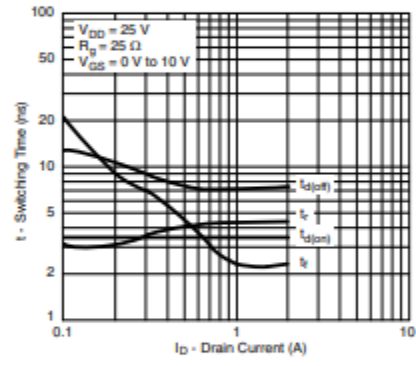
Threshold Region



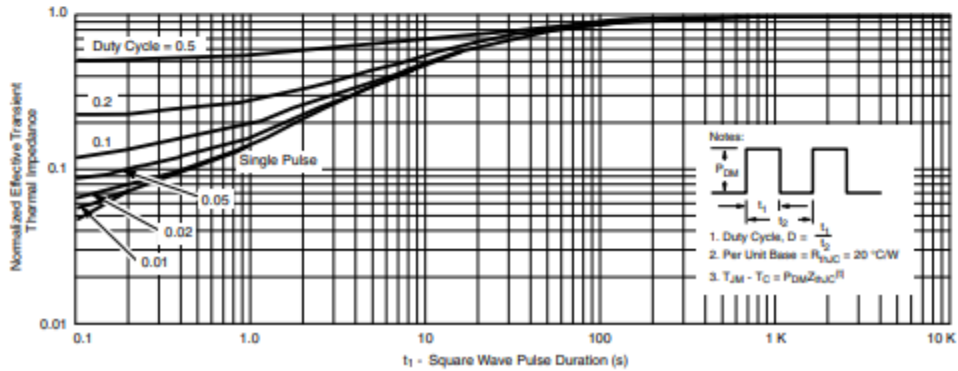
Capacitance



Gate Charge



Load Condition Effects on Switching



Normalized Thermal Transient Impedance, Junction-to-Ambient