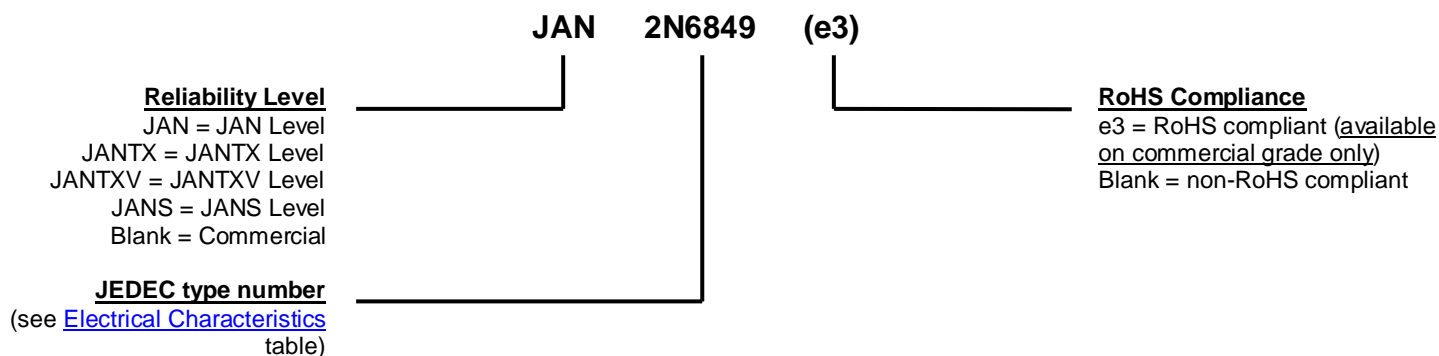


MECHANICAL and PACKAGING

- CASE: Hermetically sealed, kovar base, nickel cap.
- TERMINALS: Tin/lead solder dip nickel plate or RoHS compliant pure tin plate (commercial grade only).
- MARKING: Part number, date code, manufacturer's ID.
- WEIGHT: Approximately 1.064 grams.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE



SYMBOLS & DEFINITIONS

Symbol	Definition
di/dt	Rate of change of diode current while in reverse-recovery mode, recorded as maximum value.
I_F	Forward current
R_G	Gate drive impedance
V_{DD}	Drain supply voltage
V_{DS}	Drain source voltage, dc
V_{GS}	Gate source voltage, dc

ELECTRICAL CHARACTERISTICS @ $T_A = +25^\circ\text{C}$, unless otherwise noted

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Drain-Source Breakdown Voltage $V_{GS} = 0\text{ V}, I_D = -1.0\text{ mA}$	$V_{(BR)DSS}$	-100		V
Gate-Source Voltage (Threshold) $V_{DS} \geq V_{GS}, I_D = -0.25\text{ mA}$ $V_{DS} \geq V_{GS}, I_D = -0.25\text{ mA}, T_J = +125^\circ\text{C}$ $V_{DS} \geq V_{GS}, I_D = -0.25\text{ mA}, T_J = -55^\circ\text{C}$	$V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	-2.0 -1.0	-4.0 -5.0	V
Gate Current $V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$ $V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}, T_J = +125^\circ\text{C}$	I_{GSS1} I_{GSS2}		± 100 ± 200	nA
Drain Current $V_{GS} = 0\text{ V}, V_{DS} = -80\text{ V}$	I_{DSS1}		-25	μA
Drain Current $V_{GS} = 0\text{ V}, V_{DS} = -80\text{ V}, T_J = +125^\circ\text{C}$	I_{DSS2}		-0.25	mA
Static Drain-Source On-State Resistance $V_{GS} = -10\text{ V}, I_D = -4.1\text{ A pulsed}$	$r_{DS(on)1}$		0.30	Ω
Static Drain-Source On-State Resistance $V_{GS} = -10\text{ V}, I_D = -6.5\text{ A pulsed}$	$r_{DS(on)2}$		0.32	Ω
Static Drain-Source On-State Resistance $T_J = +125^\circ\text{C}$ $V_{GS} = -10\text{ V}, I_D = -4.1\text{ A pulsed}$	$r_{DS(on)3}$		0.54	Ω
Diode Forward Voltage $V_{GS} = 0\text{ V}, I_D = -6.5\text{ A pulsed}$	V_{SD}		-4.3	V

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate Charge:				
On-State Gate Charge $V_{GS} = -10\text{ V}, I_D = -6.5\text{ A}, V_{DS} = -50\text{ V}$	$Q_{g(on)}$		34.8	nC
Gate to Source Charge $V_{GS} = -10\text{ V}, I_D = -6.5\text{ A}, V_{DS} = -50\text{ V}$	Q_{gs}		6.8	nC
Gate to Drain Charge $V_{GS} = -10\text{ V}, I_D = -6.5\text{ A}, V_{DS} = -50\text{ V}$	Q_{gd}		23.1	nC

ELECTRICAL CHARACTERISTICS @ $T_A = +25\text{ }^{\circ}\text{C}$, unless otherwise noted (continued)**SWITCHING CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-on delay time $I_D = -6.5\text{ A}$, $V_{GS} = -10\text{ V}$, $R_G = 7.5\text{ }\Omega$, $V_{DD} = -40\text{ V}$	$t_{d(on)}$		60	ns
Rinse time $I_D = -6.5\text{ A}$, $V_{GS} = -10\text{ V}$, $R_G = 7.5\text{ }\Omega$, $V_{DD} = -40\text{ V}$	t_r		140	ns
Turn-off delay time $I_D = -6.5\text{ A}$, $V_{GS} = -10\text{ V}$, $R_G = 7.5\text{ }\Omega$, $V_{DD} = -40\text{ V}$	$t_{d(off)}$		140	ns
Fall time $I_D = -6.5\text{ A}$, $V_{GS} = -10\text{ V}$, $R_G = 7.5\text{ }\Omega$, $V_{DD} = -40\text{ V}$	t_f		140	ns
Diode Reverse Recovery Time $di/dt \leq -100\text{ A}/\mu\text{s}$, $V_{DD} \leq -50\text{ V}$, $I_F = -6.5\text{ A}$	t_{rr}		250	ns

GRAPHS

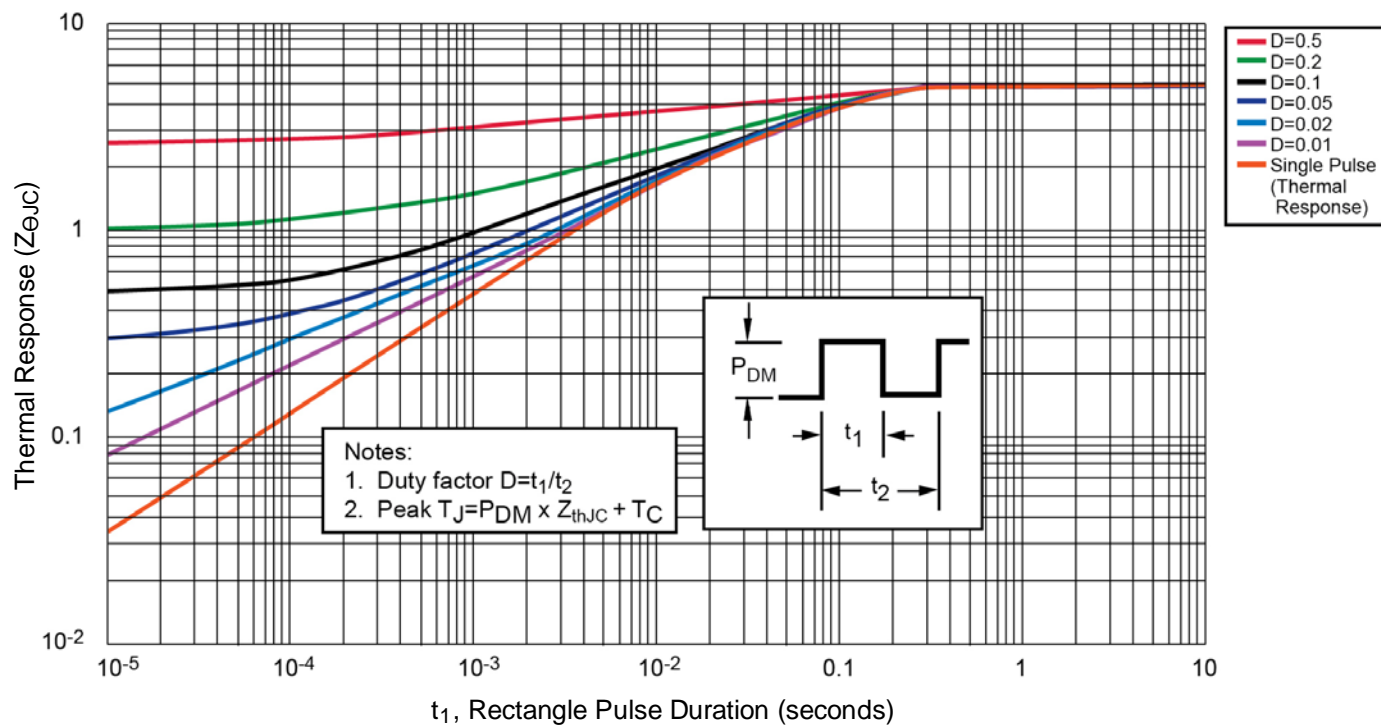


FIGURE 1 – Normalized Transient Thermal Impedance

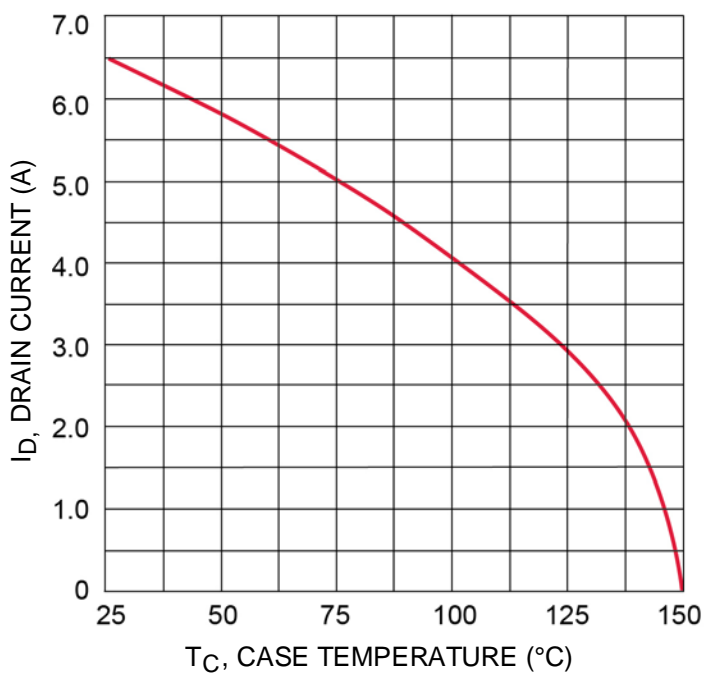


FIGURE 2 – Maximum Drain Current vs Case Temperature

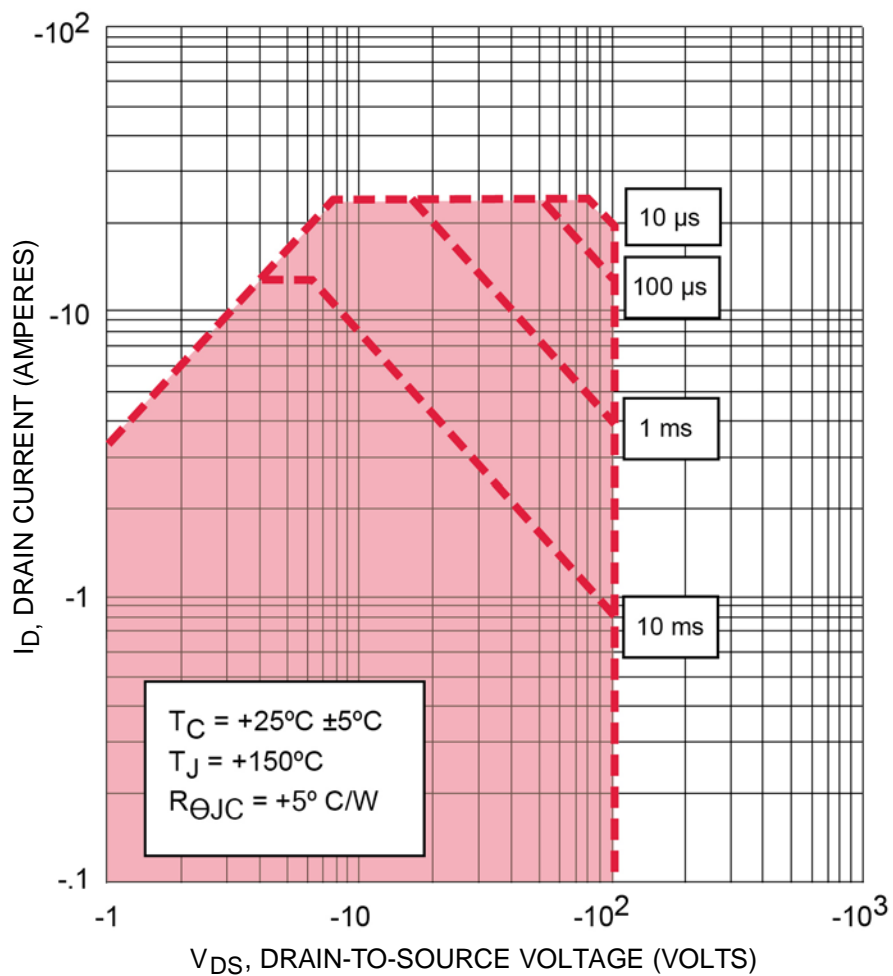
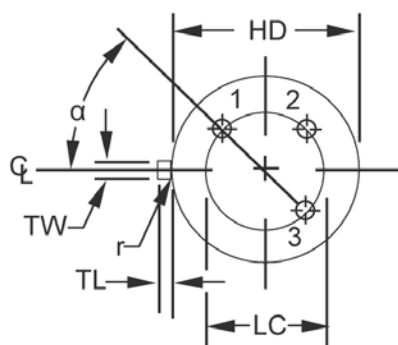
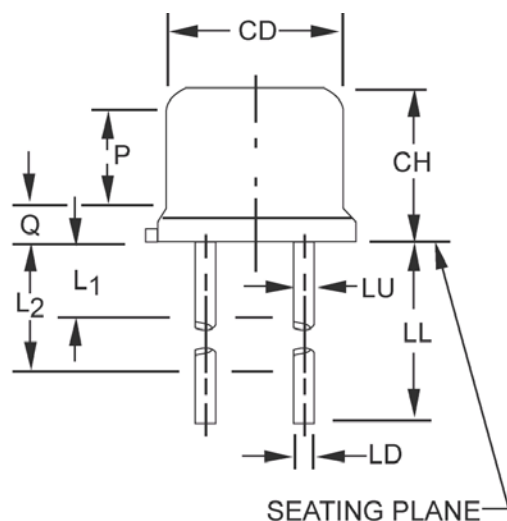
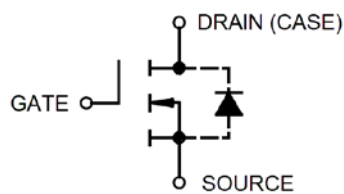
GRAPHS (continued)


FIGURE 3 – Maximum Safe Operating Area

PACKAGE DIMENSIONS


Symbol	Dimensions				Note
	Inch		Millimeters		
	Min	Max	Min	Max	
CD	0.305	0.335	7.75	8.51	
CH	0.160	0.180	4.07	4.57	
HD	0.335	0.370	8.51	9.39	
LC	0.200 TP		5.08 TP		6
LD	0.016	0.021	0.41	0.53	7, 8
LL	0.500	0.750	12.70	19.05	7, 8
LU	0.016	0.019	0.41	0.48	7, 8
L1	-	0.050	-	1.27	7, 8
L2	0.250	-	6.35	-	7, 8
P	0.100	-	2.54	-	5
Q	-	0.050	-	1.27	4
TL	0.029	0.045	0.74	1.14	3
TW	0.028	0.034	0.72	0.86	2
r	-	0.010	-	0.25	9
α	45° TP		45° TP		6


Schematic
NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Beyond radius (r) maximum, TW shall be held for a minimum length of 0.011 (0.028 mm).
3. Dimension TL measured from maximum HD.
4. Outline in this zone is not controlled.
5. Dimension CD shall not vary more than 0.010 (0.25 mm) in zone P. This zone is controlled for automatic handling.
6. Leads at gauge plane 0.054 +0.001, -0.000 (1.37 +0.03, -0.00 mm) below seating plane shall be within 0.007 (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC.
7. LU applies between L1 and L2. LD applies between L2 and LL minimum. Diameter is uncontrolled in L1 and beyond LL minimum.
8. All three leads.
9. Radius (r) applies to both inside corners of tab.
10. Drain is electrically connected to the case.
11. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.
12. Lead 1 = source, lead 2 = gate, lead 3 = drain.