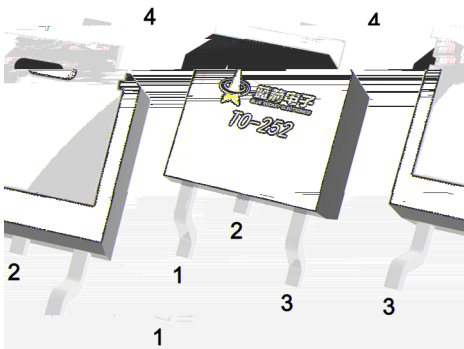
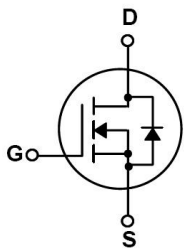


Rev.A Jul.-2025

TO-252          N          MOS  
 N-CHANNEL MOSFET in a TO-252 Plastic Package.

$V_{DS}=450V$        $I_D=7A$   
 $R_{DS(ON)}@10V$  1.2 $\Omega$ (Typ. 1.0 $\Omega$ )  
 HF Product.

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.



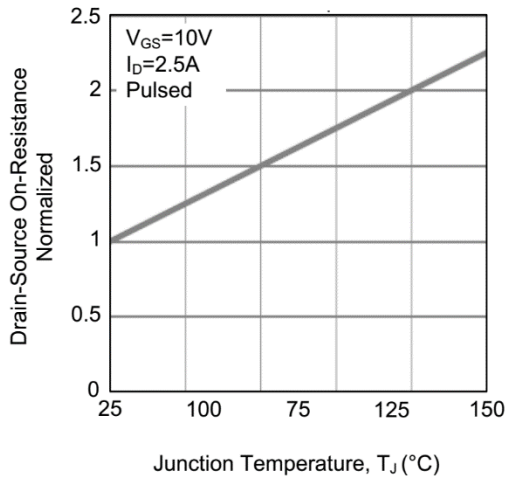
PIN1 G          PIN 2 D          PIN 3 S          PIN 4 D

See Marking Instructions.

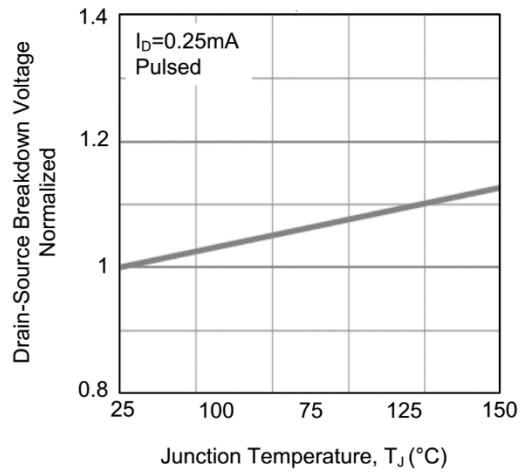
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	450	V
Drain Current	$I_D(T_C=25^\circ\text{C})$	7	A
Drain Current - Pulsed	$I_{DM}$	28	A
Gate-Source Voltage	$V_{GS}$	$\pm 30$	V
Single Pulsed Avalanche Energy	$E_{AS}$	308	mJ
Avalanche Current	$I_{AS}$	7.4	A
Power Dissipation	$P_D(T_C=25^\circ\text{C})$	50	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	
Junction to Ambient	$R_{JA}$	110	/W
Junction to Case	$R_{JC}$	2.5	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	450			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=450V$ $V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 30V$ $V_{DS}=0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0	3.1	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=3.5A$		1.0	1.2	$\Omega$
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=1.0A$			1.2	V
Gate resistance	$R_g$	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		2.6		$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		640		pF
Output Capacitance	$C_{oss}$			54		
Reverse Transfer Capacitance	$C_{rss}$			0.9		
Total Gate Charge	$Q_G$	$V_{DS}=400V$ $I_D=7.0A$ $V_{GS}=10V$		13.2		nC
Gate-Source Charge	$Q_{GS}$			4.4		
Gate-Drain Charge	$Q_{GD}$			2.0		

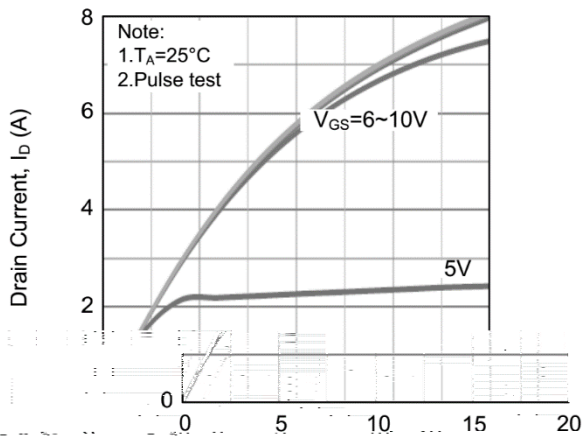
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=250V$ $I_D=7.0A$ $V_{GS}=10V$ $R_G=25\Omega$		42.4		ns
Turn-On Rise Time	$t_r$			16.9		
Turn-Off Delay Time	$t_{d(off)}$			31.8		
Turn-Off Fall Time	$t_f$			16.5		
Maximum Continuous Drain-Source Diode Forward Current	$I_S$				7	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$				28	A
Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V$ $I_S=7.0A$ $dI_F/dt=100 A/\mu s$		220		ns
Reverse Recovery Charge	$Q_{rr}$			1600		nC



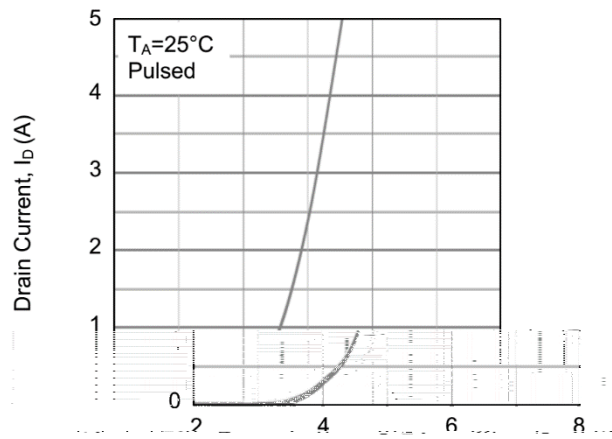
1. Drain-Source On-Resistance vs. Junction Temperature



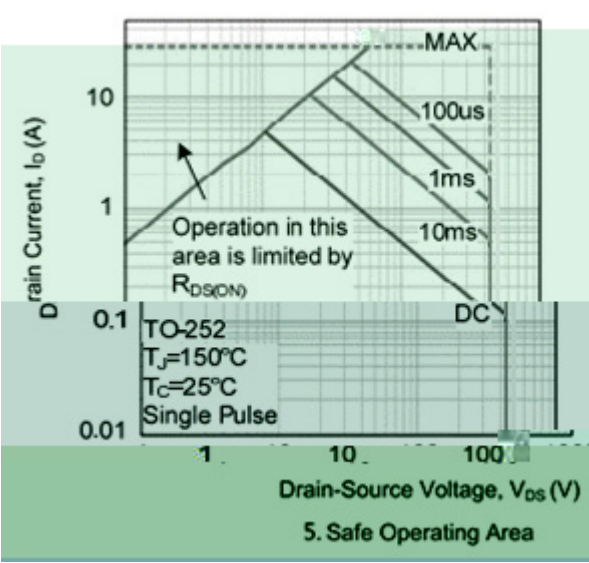
2. Breakdown Voltage vs. Junction Temperature



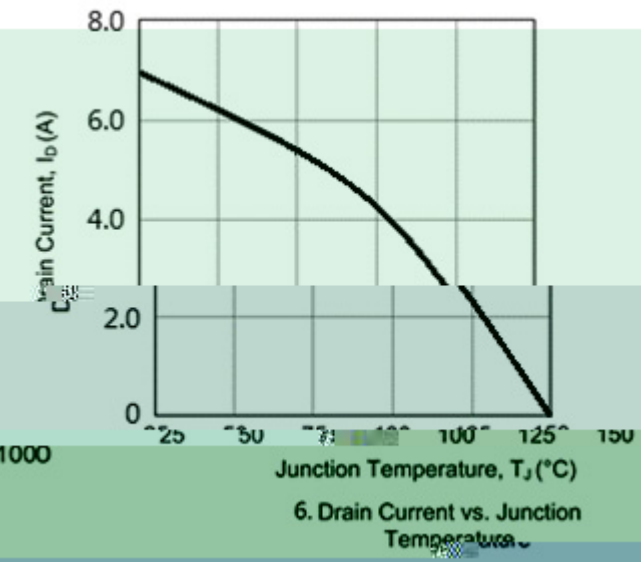
3. Drain Current vs. Gate-Source Voltage



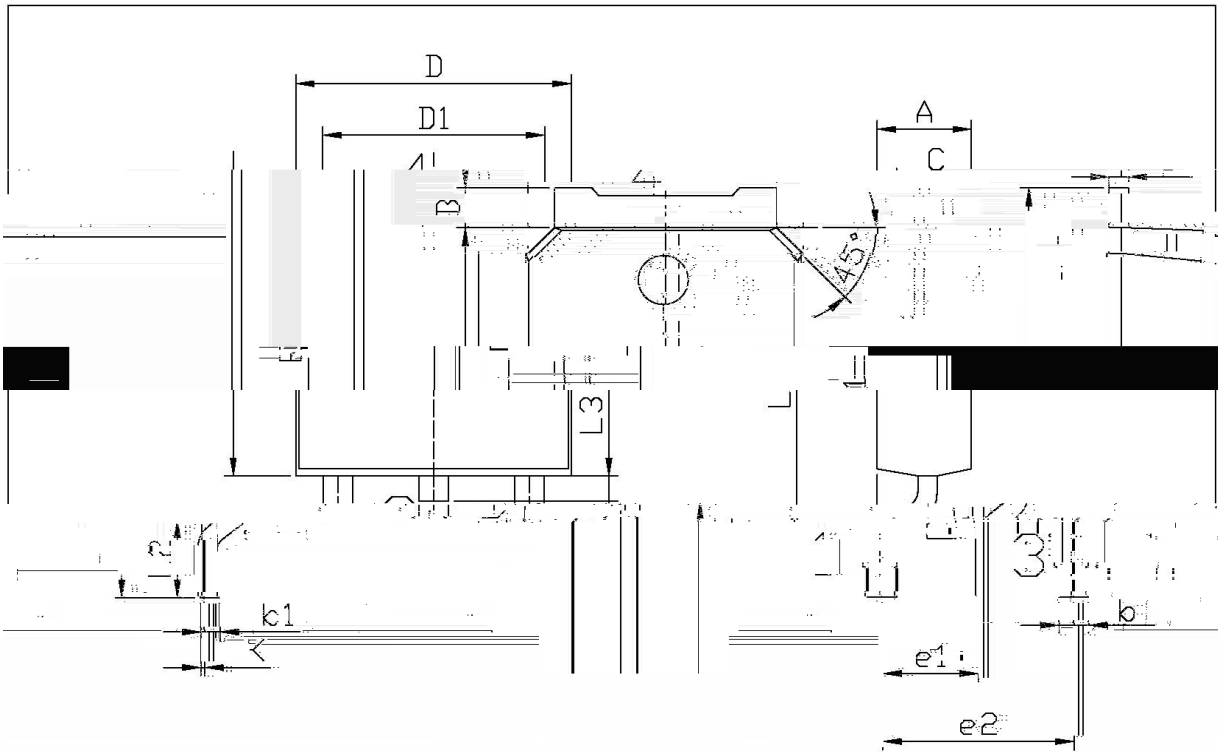
4. Drain Current vs. Drain-Source Voltage



5. Safe Operating Area



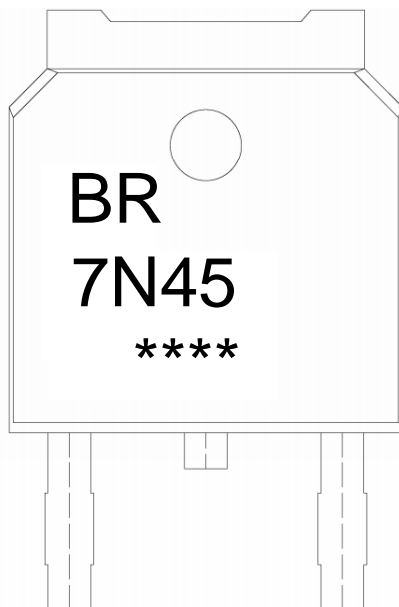
6. Drain Current vs. Junction Temperature



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.00	5.50
B	0.95	1.25	e1	2.00	2.50
b1	0.45	0.55	L1	9.85	10.35
L3	0.60	0.90	b	6.45	6.75

T0-252



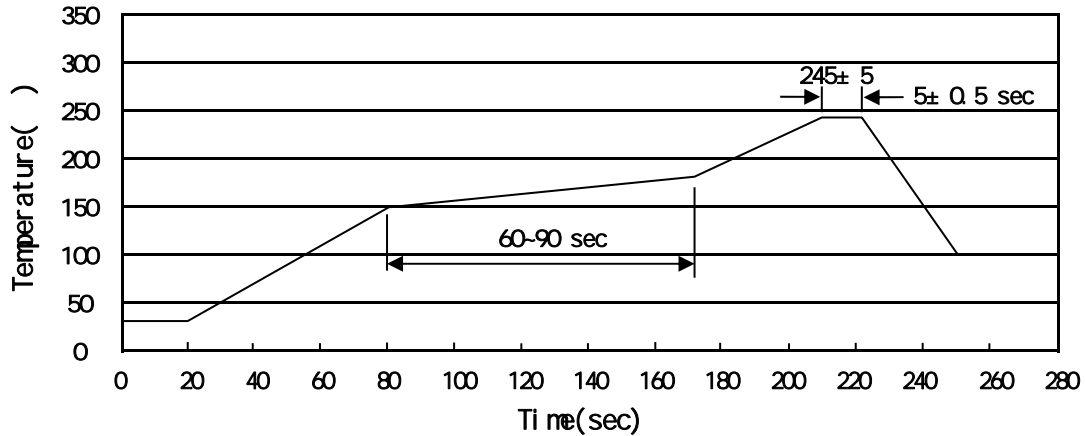
BR

Note:

BR: Company Code

7N45: Product Type Code

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

**Temperature Profile for IR Reflow Soldering(Pb-Free)**


Note:

- |   |     |     |    |          |   |
|---|-----|-----|----|----------|---|
| 1 | 150 | 180 | 60 | 90sec;   | 1.Preheating:150~180 , Time:60~90sec.   |
| 2 | 245 | 5   | 5  | 0.5sec;  | 2.Peak Temp.:245 5 , Duration:5 0.5sec. |
| 3 |     |     | 2  | 10 /sec. | 3. Cooling Speed: 2~10 /sec.            |

260 ±5

10 ±1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180